Yahoo Group Archive: w1ghz-transverter-builders

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Date span: 2010-05-14 through 2017-05-14

Source WARC: w1ghz-transverter-builders.Ihr1M0W.warc.gz

Source item: https://archive.org/details/yahoo-groups-2018-08-31T03-26-19Z-fa9464

Messages included in this PDF: 535

Yahoo replaced the domain portions of email addresses with @... in the archived messages. Characters lost in Yahoo's archived text appear as ?.

Messages are presented in ascending Yahoo message-ID order. Gaps indicate records absent from the source WARC or messages omitted from this PDF as spam.

1. Welcome to W1GHZ Transverter Builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-14 23:00:30 UTC
From: thepalmhq
Topic: 1 Message: 1

I'll kick this off by saying that, thanks to a group buy organized by W8ISS, I bought boards and parts for W1GHZ transverters on 902, 1296, 2403, and 3456 MHz. I am actively working to build and test these boards and incorporate them into a complete station, for both fixed station and rover operation.

I hope you will take the time to share your own experiences, photos, tips, fixes, and questions as you build your W1GHZ transverters.

73 de W9HQ

3. SGA-3586Z as substitute for INA-10386 must have different bias resistor!

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-14 23:20:59 UTC
From: thepalmhq
Topic: 3 Message: 3

A caution from Ben, N3UM:

It is clear from page 5 of the SGA-3586Z data sheet that the total value of bias resistance must be 136 ohms for use with an 8 volt power supply, or else a 5 volt supply must be used with a total bias resistance of 51 ohms to get the required 35 ma current.

This resistor, R3, is 51 ohms on the W1GHZ parts list, AND on the schematic which shows an 8 volt receive power supply. I assume this was appropriate for the old INA-3086, though I couldn't easily find a data sheet for that part to confirm this.

By my calculation, the combination of an 8 volt supply and R3 = 51 ohms would give 95 ma of current through an SGA-3586Z amp, very probably leading to cremation of the MMIC since its absolute maximum device current is 70 ma.

It's pretty simple to either supply 5 volts for receive, as is done in the 2304 transverter, or just add 86 ohms in series with the receive supply lead for the 900 and 1300 MHz transverters. Doing neither seems likely to result in SGA-3586 destruction.

4. 902 MHz board, trace to cut

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-14 23:22:22 UTC
From: thepalmhq
Topic: 4 Message: 4

In building my 902 MHz transverter board, I noticed a trace to ground in the LO path. I have confirmed with W1GHZ that this trace, which appears in an early revision of the board, does need to be cut. Please see the picture in the Photos section for the exact location of this tracer. If your board doesn't have it, you're good to go, but if you see it then you'll need to cut it for correct operation.

73 de W9HQ

5. INTRODUCTION

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 02:11:17 UTC
From: kj4exc
Topic: 5 Message: 5

THANKS FOR THE INVITATION TO JOIN. I AM GERALD, KJ4EXC. I HAVE BUILT SEVERAL OF THE KITS AND AM VERY PLEASED WITHE PERFORMANCE. THEY ARE A GREAT WAY IN DELVE INTO THE MICRO WAVE AREA WITH OUT BREAKING THE BANK. WHILE LEARNING SMD AND RFI TECHNIQUES, AND FURTHER OUR UNDERSTANDING OF THIS GREAT HOBBY.

GERALD, KJ4EXC

6. Re: INTRODUCTION

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 02:40:30 UTC
From: thepalmhq
Topic: 5 Message: 6

Thanks for joining the group, Gerald. I agree with you completely that this is a great and reasonably priced way to learn about microwave technology. I look forward to learning a lot more from all of you.

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, "kj4exc" <cow2toxic@...> wrote:
>
>
> THANKS FOR THE INVITATION TO JOIN. I AM GERALD, KJ4EXC. I HAVE BUILT SEVERAL OF THE KITS AND AM VERY PLEASED WITHE PERFORMANCE. THEY ARE A GREAT WAY IN DELVE INTO THE MICRO WAVE AREA WITH OUT BREAKING THE BANK. WHILE LEARNING SMD AND RFI TECHNIQUES, AND FURTHER OUR UNDERSTANDING OF THIS GREAT HOBBY.
>
> GERALD, KJ4EXC
>

7. introduction

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 02:54:45 UTC
From: wa5djj2005
Topic: 7 Message: 7

Thanks for the invitation. I have my boards and parts but have
not yet stated to get them together. Hopefully this summer
will allow me to get them finished and intefaced to my FT817.

That is the plan. Looking forward to getting them going so
I can build me a rover station to travel around out here in
the west and Work some contacts and rare squares.

Hope to meet all of you as we go along.
73 Dave
website: http://www.zianet.com/dhassall/

8. Re: introduction

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 16:38:16 UTC
From: thepalmhq
Topic: 7 Message: 8

Thanks for joining, Dave. It's great that we have members at all levels of experience here. Let us know when you start building.

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, "wa5djj2005" <dhassall@...> wrote:
>
> Thanks for the invitation. I have my boards and parts but have
> not yet stated to get them together. Hopefully this summer
> will allow me to get them finished and intefaced to my FT817.
>
> That is the plan. Looking forward to getting them going so
> I can build me a rover station to travel around out here in
> the west and Work some contacts and rare squares.
>
> Hope to meet all of you as we go along.
> 73 Dave
> website: http://www.zianet.com/dhassall/
>

9. New Old Guy

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 17:23:57 UTC
From: jracepilot
Topic: 9 Message: 9

Hi all!

N0EDV, Scott, here...Bloomer, WI EN45fa.

I've built Paul's 222 transverter and have a blank board I'm hacking to a 2M I.F. instead of 24 MHz.

I've finished up my basic 1296 RSU unit. Now building the driver amp and amp for about 40W out.

Have boards for 2304/3456 along with a spare board I'm going to try to hack up to 5760.

My intentions are to use these as loaner rigs for others to try out the bands during the various VHF/UHF/SHF contests to "hook" them on microwaves! ;)

10. thanks for setting up this group!

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 19:07:15 UTC
From: Steve Bunch
Topic: 10 Message: 10

Good idea! This will help keep the good ideas flowing!

I wrote a few emails to an earlier email list describing my experience building the 1296RSU transverter, including posting a link to some photos I took as I was building. I've pasted the most recent one below. Even though it was quite a while ago, due to work pressure I haven't finished it up yet. This was a learning project for me as I was already on 1296, but it has been a lot of fun and very educational -- though much of the education was of the "don't do it this way again!" kind. ;-)

Two updates to that note are that I did design and lay out a (single-sided) PCB for sequencing and switching power. I didn't etch and build it yet, was going to check a couple of the circuits on a breadboard first, but if someone wants to look at it, I'll post the design files. It sequences in the amp and powers it only if the power supply is 24v (which is what the amp needs) -- on 12V, the amp is disconnected and the transverter runs barefoot. I also took the interdigital filter shown in my construction photos to the Central States Microwave conference, and it was measured on high-quality equipment. It measured 0.6dB insertion loss, basically what the design software predicted. (If anyone wants the design parameters I used, let me know and I'll type them in).

I'll mostly be lurking, unfortunately, as this company is taking all my time these days, but I'm very interested in continuing the learning, and seeing what people do with Paul's handiwork!

73,
Steve, K9SRB

I've been taking pictures as I built up my 1152 LO and 1296 RSU, and posted some of them at: http://gallery.me.com/k9srb You can see the results I'm getting so far on the spectrum analyzer pictures. Boxing things up improved the spurs on the output, which is not required if you're running barefoot (because the absolute power in the spurs is below the FCC limits) but becomes relevant if you're going up in power. (I did make one minor change that improved LO feedthru: I used a MAV-11 instead of a MAR-6 for the LO amp -- would have used a MAR-1 if I'd have had one on hand. Not strictly necessary, but reduced the amount of work my interdigital filter would have to do to knock the IF feedthru spur down.)
>
>I used angle-aluminum and PCB material to construct the internal boxes to contain the LO and transverter, as the pictures show. I probably wouldn't do it this way again, though, it's just too much work. Next time, I'd go flat -- put the boards on standoffs on one sheet of PCB, with vertical walls of PCB material to isolate them. It'd make isolation and connecting them much, much easier, and save a lot of mechanical work. If you have access to a shear, or have a carbide blade in your radial-arm saw, working with PCB material is really quick and simple. I probably spent as much time cutting, drilling, and tapping holes as I spent soldering up the boards, and it's not as much fun.
>
>I did experience a small amount of feedback and oscillation (which manifested as some birdies and distortion in a received SSB voice signal) when transmitting, with the lid off

the box, working on the bench. I exchanged emails and sent pictures to W1GHZ, who made some debugging suggestions, but he didn't have any other negative comments or warnings about the packaging. The problems went away when I put the lid on the box (duh!), but I've added some additional bypassing and filtering between the stages and the outside world to increase the safety margin when I add the amplifier. It looks like as long as the components are kept well-isolated from one another, they will play in one box.
>
>If I was going to stop at a barefoot transverter, I'd be done. But I haven't finished the box yet. Right now, I'm working on an interdigital filter (see http://www.wa4dsy.net), and have laid out a small two-relay board to use with a 10W brick amplifier (uses two of the Omron relays to switch the brick in and out of the antenna path). Slow progress, but it's coming together.

11. K5QNM's early experiences with the 1296-RSU board

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 21:16:23 UTC
From: thepalmhq
Topic: 11 Message: 11

I corresponded with Gary, K5QNM a year ago about his experiences putting together and testing the 1296-RSU board. He's on the group and will be updating us with his more recent experiences, but with his permission I wanted to capture what he wrote to me a year ago. These are the kinds of things that can save us all a lot of hassle.

What I am putting together here is 2 complete 902 mhz rigs, 2 complete 1296 mhz rigs and 2 spare 1152 LO Strings. The 1296 Right Side Up Transverter transmitters are in the process of really being wrung out looking for any problem areas. Right now, I have 13 mw output CW on the first rig and am wiring the second rig. One thing that I found out is careful power wire layout is a must, otherwise the LO and XVTR will start oscillating a some frequency. When bringing the +VDC from the LO PCB to the XVTR PCB, I needed to use shielded wire, in this case RG-316 coax. This calmed down the rig completely. I started the CW drive at just under 2 mW and was just not able to get much 1296 mhz power. I increased drive to 4.5 mW CW and the power came up to 13 mW. My next task is to increase the LO power.

In one of my "Will this thing blow up tests", I find that the 1296 mhz Right Side Up Transverter will tolerate +8.0 VDC up to +13.6 VDC, with power output beginning to saturate at 10.56 VDC. I don't recommend running the higher voltage. This was only a test.

The CW Chirper I built up put out 47 mw and we had fun hill-topping with only quarterwave whips. 8.4 miles, no problem on 144.100 mhz CW.

I successfully managed to get a 1296 mhz XVTR Receiver looked at today. I have done a bit of looking into receive an/or transmit Phase Noise this last week and have found that a Programmable Oscillator at 144.100 mhz being used as an IF Transmit source will have a great deal of Noise either side of the 1296 mhz carrier. I find that a crystal oscillator at 24 mhz, multiplied up to 144.000 mhz will have very little noise at 1296 mhz, but will have 15 to 25 khz of drift, (we are working on that). The 1152 mhz LO source is very clean and does not have (Phase) Noise at the 1152 mhz output. With this background, I find that the receiver on the 1296 mhz RSU XVTR is very clean and appears to have reasonable sensitivity. my 2 meter receiver went to S-9 on a weak signal and this signal had no (Phase) Noise.

12. K5QNM's ideas on low-power amplifiers

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-15 21:20:02 UTC
From: thepalmhq
Topic: 12 Message: 12

K5QNM shared his ideas with me on a variety of low-power amplifiers that may be useful to boost your transverter's signal. This is the kind of stuff I want captured. If you use any of these please share your experiences, good or bad, with the group.

Now, to increasing power out. I was able to sample a few of RF Micro Devices RF2126 broadband amplifiers. Attached is the PDF for the RF2126. I have been pulling out the transmit amplifiers from old cell phones, such as the SAU-33, which is good for 6 watts out on 902 mhz when driven with 1 mw. The last amplifier is 16 watts out on 902 mhz. Specifically for 1296 mhz, several of the RF companies will sample a device or 2. Just do a lot of looking in the product catalogs. One thing I tried was biasing an MRF559 into Class A and giving it very little drive power to get more power out and ignoring any efficiency. The MRF559 is good for a half watt at 1296 mhz. The RF2126 takes 100mw of drive to drive it to 1.3 watts. In this paragraph, I am trying to keep the costs down below a ten dollar bill.

If I was going to start from scratch, I would go to the Mouser catalog, and for example, go to WJ Communications, (one of many RF vendors) and look at part number 772-FP2189-G, which is WJ Comm's part number FP2189-G. Frequency bandwidth of 50 to 4000 MHZ, with a Gain of 18 DBs and a P1dB of +30DBM. + 30 DBM is 1 watt and the price is $7.41 plus postage. The SOT-89 package is easy to work with. This is a pretty stout little FET.

You might want to go real simple with WJ Comm's ECG003B-G for 5.70. A little 50 ohm in and 50 ohm out MMIC in the SOT-89 package. +24 DBM of P1dB, DC to 6 GHZ. +24 DBM is still 250 milliwatts. Do a combiner and get a half watt. This MMIC may get a bit more looking into by me as it will make power clear to 6 GHZ. You can carve your own circuit board out of FR-4 material with very straight lines. Tuning this MMIC is a bit more complicated on the pcb carving. Somewhere in this pile of papers is "How to make your own Bandpass filters for 902, 1296 and 2304 and possibly 3456 mhz". Real simple and does not require test equipment. I have carved pcbs that have worked clear up to 18 GHZ.

13. Photos Section

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-16 14:48:22 UTC
From: jracepilot
Topic: 13 Message: 13

No biggie, but I see in the photos section, one of the folders is listed for "2403"...while we can operate at 2403 in the USA, the most common frequency for weak signal ops is centered around 2304...probably just that mild case of Dyslexai ;) I think it might be messed up in the welcome message to new members as well....we don't want a bunch of new guys getting on 2403 ;)

Scott
N0EDV

14. Intro

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-16 18:27:54 UTC
From: Zack Widup
Topic: 14 Message: 14

Hi,

I've been using the original KK7B transverter designs for 903 and 1296 MHz for many years, mostly as a portable station on hilltops. Although they perform well, I've always had a few problems with both. When I saw Paul's design for the new transverters, I knew I had to try them.

I got one set of boards (LO and transverter) for the 902/3 RSU transverter and three sets for the 1296 transverter. I intend to use the 903 and one of the 1296 boards directly for those bands. I want to use the other two 1296 MHz transverter boards as IF's for 24 and 47 GHz (maybe 78 GHz too).

I'm not following quite the LO scheme that Paul has in his articles. My transverters for 2304, 3456, 5760 and 10368 MHz all have LO's that are phase-locked to a 10 MHz OCXO standard. So I decided to use a 94.75 MHz crystal that I had laying around to build an LO for 758 MHz and another 96 MHz crystal for the 1152 MHz LO. I like the KD6OZH low phase noise PLL circuit. I use this in the above mentioned transverters. I have one built up for the 903 MHz transverter and am working on the one for 1296.

The 1296 MHz LO board will work with the external 96 MHz oscillator with no modifications. Paul told me to use the same capacitor values on the 758 MHz board as his design shows for the 1296 board, and that it should multiply 94.75 OK to 758. I have this put together and I'm getting +2 dBm out of it at 758 MHz. I may try to tweak it a bit or I might add another stage to the 903 board before the mixer to bring the 758 MHz up to +7 dBm.

I have a few 902 MHz helical filters that I want to use on the input and output lines of the 903 MHz transverter between the receive preamp and power amp. I have the WD5AGO/W5LUA LNA design using the ATF36077 and MGF61563 devices for 903 and 1296 MHz preamps mostly built. I should be able to get around 0.30 dB noise figure and 35 dB gain out of it on 903. We'll see. I'll probably take these to Central States this year for testing as I have no noise figure meter.

I think this will all work very well.

73, Zack W9SZ

15. How much IF drive is right for the W1GHZ transverters?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-16 21:09:32 UTC
From: thepalmhq
Topic: 15 Message: 15

Since I've got my 756 and 1152 MHz LO I'm about ready to try out my 902 MHz transverter. So I've been thinking a bit about IF levels.

But what is the right level? I've read somewhere that it's 1 mW. Elsewhere, in my private correspondence with one ham who's building these he said he needed to boost that a bit, to the 2-3 mW range.

The ADE-5 mixer data sheet says that it can take a maximum of 50 mW. So that's good news--looks like you can mess up by more than 10 dB over and still not burn out the part.

Two questions, then. First, what is the right level of drive based on your experience?

And second, why is this the right level? Just as a general point of learning for me and others, I'm curious why 1 mW (0 dBm) would be the right amount of IF for a rig that has about 3 mW (5 dBm) of LO input on the mixer? Or is a balance of LO and IF more correct, hence the one ham's experience that he needed to boost the IF power a bit?

Thanks and 73,

David W9HQ

16. Re: [w1ghz-transverter-builders] How much IF drive is right for the W1GHZ transverters?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-16 21:21:12 UTC
From: Scott
Topic: 15 Message: 16

I generally use 1 mW into the mixer. Mostly because that's the way everyone seems to have done it for years. That said, I discovered that with 1 mW of drive (or even less) it makes for a much cleaner output from the mixer according to the spectrum analyzer. I'm sure someone can supply the scientific answer....I just set mine by visual observation on the analyzer.

N0EDV

thepalmhq wrote:
>
> Since I've got my 756 and 1152 MHz LO I'm about ready to try out my
> 902 MHz transverter. So I've been thinking a bit about IF levels.
>
> But what is the right level? I've read somewhere that it's 1 mW.
> Elsewhere, in my private correspondence with one ham who's building
> these he said he needed to boost that a bit, to the 2-3 mW range.
>
> The ADE-5 mixer data sheet says that it can take a maximum of 50 mW.
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> over and still not burn out the part.
>
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> your experience?
>
> And second, why is this the right level? Just as a general point of
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> right amount of IF for a rig that has about 3 mW (5 dBm) of LO input
> on the mixer? Or is a balance of LO and IF more correct, hence the one
> ham's experience that he needed to boost the IF power a bit?
>
> Thanks and 73,
>
> David W9HQ
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

17. Re: [w1ghz-transverter-builders] How much IF drive is right for the W1GHZ transverters?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-16 23:56:02 UTC
From: Zack Widup
Topic: 15 Message: 17

I've driven similar mixers with -3 to +6 dBm with no ill effects. The specs do say 0 dBm (1 mW) recommended so usually I adjust it for that and if the output is way off I swap MMIC's to get what I want. If it's a little off from what I want, I adjust the input by a couple dB.

73, Zack W9SZ

On Sun, May 16, 2010 at 4:09 PM, thepalmhq <thepalmhq@...> wrote:

>
>
> Since I've got my 756 and 1152 MHz LO I'm about ready to try out my 902 MHz
> transverter. So I've been thinking a bit about IF levels.
>
> But what is the right level? I've read somewhere that it's 1 mW. Elsewhere,
> in my private correspondence with one ham who's building these he said he
> needed to boost that a bit, to the 2-3 mW range.
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> The ADE-5 mixer data sheet says that it can take a maximum of 50 mW. So
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> And second, why is this the right level? Just as a general point of
> learning for me and others, I'm curious why 1 mW (0 dBm) would be the right
> amount of IF for a rig that has about 3 mW (5 dBm) of LO input on the mixer?
> Or is a balance of LO and IF more correct, hence the one ham's experience
> that he needed to boost the IF power a bit?
>
> Thanks and 73,
>
> David W9HQ
>
>
>

18. W9HQ Intro

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-17 22:48:06 UTC
From: thepalmhq
Topic: 18 Message: 18

Wow, a great group has come together in just a few days.

I wanted to introduce myself. I've been a ham for over thirty years, getting my Advanced license back in the day, but dropping out of the hobby for the better part of that thirty years. I'm back with a vengeance on account of my son Christopher (KC9JTL) which whom I share the joy of VHF-UHF contesting and now roving.

Of all amateur radio facets, the one that held the LEAST interest with me was microwave stuff. But over the past few years I've been increasingly drawn toward the unique challenges and now, with my discovery that I can actually make my own equipment using the W1GHZ designs, I'm totally hooked.

I have boards and parts for 902, 1296, 2304, and 3456 MHz LOs and transverters and another set of PCBs for additional experimentation.

I have my 956 and 1152 MHz LO boards stuffed and working. Today I built an attenuator pad for use with my temporary IF rig. The last thing I need to do is swap out the bias resistor for the front-end amplifier on the 902 MHz transverter and I'll be ready to check it out.

Unfortunately, I have some dopey Frontline Leadership training tomorrow, or I'd get 'er done then. It'll probably have to wait until later in the week, but I hope to have the 902 LO/xvtr pair done this week and perhaps the 1296 LO/xvtr pair done next week.

I'll be posting my blow-by-blow experiences on my blog, http://w9hq.blogspot.com

Thanks to all of you for joining the group. I think we're all going to learn a lot and have a lot of fun as the months roll by and we share out our experiences with these intriguing radio designs.

73,

David W9HQ

19. Re: [w1ghz-transverter-builders] W9HQ Intro

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-18 01:12:59 UTC
From: WE7X@aol.com
Topic: 18 Message: 19

I'm Rod,
I live in Issaquah, Washington, and I seem to have an addiction to buying kits. I buy more stuff than I can use, but with the honest plan and desire of using it 'sometime' .
Now that I have that confession out of the way, I feel better.

I have a complete set of DEM kits from several years ago. (222 thru 10GHz, less the 1296 unit, for which I have an old commercial Maki--Denki). My problem is that I have built some of them, and partially built some others; but even the built ones never seem to get on the air. I also participated in the original 'group buy" of the W1GHZ 222 transverter kit for my FT-817, but never built it, and subsequently sold the kit to a fellow club member, who probably will join this list soon. When I go roving, or portable, I have enough antennas and rigs on 6m through 432 MHz. to keep me occupied, and since the currrent rules take one out of the limited class into a much more wide open class if you exceed the four band 'limited' category, I've just never made the extra effort. So I just never seem to get them out in the field. I am buried in a forest of over 100 foot trees at the home QTH, so microwaves are not vary practical from here at home.
I am hoping that subscribing to this list will increase my interest and connections with some who are more active than myself, and that I will learn something along the way.
Best wished for the group.
Rod J
WE7X

20. Re: [4Smicrowave] New Yahoo! group for W1GHZ transverter builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-18 11:02:47 UTC
From: Scott
Topic: 20 Message: 20

And, the INA-10386 is still available from Dan's Small Parts and Kits
for $2.85 each for those folks that want to build to original...his site
is just a long list of parts and pieces, so you have to just scroll down
until you get to it...

http://www.danssmallpartsandkits.net/

Scott
N0EDV

Don AE5K wrote:
> (------ 4 State Microwave List ------)
>
> A couple days ago this email appeared on the NLRS list and should be
> of interest to many on this 4smicrowave list also. I know some of you
> have already signed up. Our (4smicrowave) list also continues to be
> available as well as the website and wiki for the W1GHZ transverter
> builders. It is unfortunate that W9HQ did not coordinate with us
> before starting a new group, but his new Yahoo list probably is a
> better forum than our list as we try to cover our regional activity as
> the main thrust. I would encourage all builders on our list to join
> the new list.
>
> I would like to remind those who were in on our group buy a year ago
> that the resistor value for the substitute SGA part (for the INA) was
> correct in our group buy as supplied and documented on our website's
> bill of materials. I repeated the above due to the fact that already
> there has been a scare warning on the yahoo list about this.
>
> 73,
> Don AE5K
>
> -------- Original Message --------
> Subject: [NLRS] New Yahoo! group for W1GHZ transverter builders
> Date: Fri, 14 May 2010 18:36:04 -0500
> From: David Palm <thepalmhq@...>
> To: NLRS List <nlrs@...>, Badger Contesters List
> <badgercontesters@...>, La Crosse Hams
> <lacrossehams@...>
>
> I have started for W1GHZ transverter builders and those interested in the
> "Simple and Cheap" W1GHZ transverter designs (see
> http://www.w1ghz.org/MBT/multiband.htm).
>
> Please go here if you are interested in the group:
>

> http://groups.yahoo.com/group/w1ghz-transverter-builders/
>
> I hope you will consider join the group. Lots of hams are doing some
> very
> interesting experiments with their W1GHZ transverter boards. There's
> a lot
> to learn. And we would love to see what you are doing with your own
> boards,
> or just hear from you if you're interested. So please, join us in the
> group
> and keep us posted on your progress, ideas, fixes, tips, and questions.
>
> 73,
>
> David W9HQ
> _____
> NLRS mailing list
>
> ----------
>
> _____
> 4-State Microwave Discussion List
> List Info:
> http://lists.ae5k.us/listinfo.cgi/4smicrowave-ae5k.us
> Post message: mailto:4Smicrowave@...
> Archives: http://lists.ae5k.us/pipermail/4smicrowave-ae5k.us/
> 4Smicrowave web page: http://4smicrowave.ae5k.us
>
>
>
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

21. 1296 xvrtr -- Massive LO output and no 1296MHz, Mixer let loose?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-18 13:43:35 UTC
From: kf4ylm
Topic: 21 Message: 21

Put together the 1296 xverter a while back, and seemed to work fine. Added a "1-watt" PHEMT amp kit from Mark at MiniKits in Australia (highly recommended), and build an evanescent-mode waveguide filter as Paul described in QEX a while back on the output. All came together fine.

Went to the hilltop to put it on the air, and suddenly all I get on the filter input is the 1152 LO freq... at nearly 1 watt! Spec analyzer shows nil on 1296.... or 129x (changing IF freq up and down), even before the filter.

Poked around on the board, pressing here and there thinking there might be a loose solder joint somewhere. Still nothing but LO.

I have a grudge against the mixer at this point, but I think it might be a little unfounded. Thoughts?

Have the PA mounted against the back wall of my chassis, unshielded from the LO and xvrtr boards, but bench test proved OK when it was installed.

Driving with -4dBm to keep the PA output happy and clean. Driven from an old IC-251A that has the last three stages of its PA jumped out. I can make details on that mod available if anyone else is thinking of using this as an IF strip.

Haven't put a sig gen on it yet to see what she's doing in receive... guess that would be one place to start. Might be a week or so before I can get to a properly equipped lab and sit down in front of one of those things.

Wondering if anyone has another idea on where else to start troubleshooting before I get the iron out and start hacking on the thing. Anyone else seen this problem on their unit.

Also put 902 together, and hope to have it packaged up before the June 'test.

73,
- Josh / KF4YLM

22. Re: [w1ghz-transverter-builders] Re: [4Smicrowave] New Yahoo! group for W1GHZ transverter builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-18 13:46:10 UTC
From: Zack Widup
Topic: 20 Message: 22

One of my favorite eBay sellers, rfextra, was selling packages of 10 INA-10386 for $20 plus a reasonable shipping rate. I bought two packages from him. He may still have some for sale too.

The SGA-4586, compared to the INA-10386, has slightly less gain but a much better noise figure. The INA-10386 has a flat gain response from DC to 1.5 GHz and the SGA-4586 doesn't, but I don't care about that in transverter use since I'm only going for a single band. I bought a bunch of SGA-4586 some time ago (I believe also from rfextra) and have used them as the receive front end IC in transverters on 144, 222, 903 and 1296 MHz. I add an external FET LNA preamp adead of that.

Manipulating gain with MMIC gain blocks is one of the easiest things to do. They come in such a variety of gains that you can substitute another if you have too much or not enough, and you can generally squeeze another one into a circuit if needed.

73, Zack W9SZ

On Tue, May 18, 2010 at 6:02 AM, Scott <acepilot@...> wrote:

>
>
> And, the INA-10386 is still available from Dan's Small Parts and Kits
> for $2.85 each for those folks that want to build to original...his site
> is just a long list of parts and pieces, so you have to just scroll down
> until you get to it...
>
> http://www.danssmallpartsandkits.net/
>
> Scott
> N0EDV
>
> Don AE5K wrote:
> > (------ 4 State Microwave List ------)
> >
> > A couple days ago this email appeared on the NLRS list and should be
> > of interest to many on this 4smicrowave list also. I know some of you
> > have already signed up. Our (4smicrowave) list also continues to be
> > available as well as the website and wiki for the W1GHZ transverter
> > builders. It is unfortunate that W9HQ did not coordinate with us
> > before starting a new group, but his new Yahoo list probably is a
> > better forum than our list as we try to cover our regional activity as
> > the main thrust. I would encourage all builders on our list to join
> > the new list.

> >
> > I would like to remind those who were in on our group buy a year ago
> > that the resistor value for the substitute SGA part (for the INA) was
> > correct in our group buy as supplied and documented on our website's
> > bill of materials. I repeated the above due to the fact that already
> > there has been a scare warning on the yahoo list about this.
> >
> > 73,
> > Don AE5K
> >
> > -------- Original Message --------
> > Subject: [NLRS] New Yahoo! group for W1GHZ transverter builders
> > Date: Fri, 14 May 2010 18:36:04 -0500
> > From: David Palm <thepalmhq@... <thepalmhq%40gmail.com>>
> > To: NLRS List <nlrs@....net <nlrs%40mailman.qth.net>>, Badger
> Contesters List
> > <badgercontesters@... <badgercontesters%40mailman.qth.net>>,
> La Crosse Hams
> > <lacrossehams@... <lacrossehams%40qth.com>>
> >
> > I have started for W1GHZ transverter builders and those interested in the
> > "Simple and Cheap" W1GHZ transverter designs (see
> > http://www.w1ghz.org/MBT/multiband.htm).
> >
> > Please go here if you are interested in the group:
> >
> > http://groups.yahoo.com/group/w1ghz-transverter-builders/
> >
> > I hope you will consider join the group. Lots of hams are doing some
> > very
> > interesting experiments with their W1GHZ transverter boards. There's
> > a lot
> > to learn. And we would love to see what you are doing with your own
> > boards,
> > or just hear from you if you're interested. So please, join us in the
> > group
> > and keep us posted on your progress, ideas, fixes, tips, and questions.
> >
> > 73,
> >
> > David W9HQ
> > ____
> > NLRS mailing list
> >
> > --
> >
> > ____
> > 4-State Microwave Discussion List
> > List Info:
> > http://lists.ae5k.us/listinfo.cgi/4smicrowave-ae5k.us

> > Post message: mailto:4Smicrowave@... <4Smicrowave%40ae5k.us>
> > Archives: http://lists.ae5k.us/pipermail/4smicrowave-ae5k.us/
> > 4Smicrowave web page: http://4smicrowave.ae5k.us
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> --
> Scott
> http://corbenflyer.tripod.com/
> Flying Corben Junior Ace - Building RV-4
> Gotta Fly or Gonna Die
>
>
>

23. Re: [4Smicrowave] New Yahoo! group for W1GHZ transverter builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-18 14:41:47 UTC
From: thepalmhq
Topic: 20 Message: 23

Thanks Scott and Zack. It looks like those INA-10386s are still available from rfextra, at least right now.

My friend Chris, KF9OP, says that noise factor is 10 dB more important than gain (maybe 20 dB more important, he says, but that's probably a stretch ;o). You can always get more gain, but once it's lost in the noise, it's lost for good, right?

I do want to note that those who received parts as part of the group buy sponsored by W8ISS do need to change the bias resistor for the SGA-4586. So it's worth double-checking. I'm swapping mine today.

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> One of my favorite eBay sellers, rfextra, was selling packages of 10
> INA-10386 for $20 plus a reasonable shipping rate. I bought two
> packages from him. He may still have some for sale too.
>

24. Re: [w1ghz-transverter-builders] Re: [4Smicrowave] New Yahoo! group for W1GHZ transverter builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-18 17:18:40 UTC
From: Zack Widup
Topic: 20 Message: 24

The data sheet for the SGA-4586 gives data for 3.2 volts at 45 mA. With the 8 volt supply recommended in the W1GHZ article, a 100 ohm resistor is close enough (106.66 ohms calculated). Power dissipated in the resistor is 0.2 watts, so I'd recommend a quarter-watt carbon comp. resistor for the bias resistor.

The INA-10386 is characterized at 6 volts and 46 mA in the data sheet. With an 8 volt supply, this works out to a 43 ohm resistor. I guess the 51 ohm resistor recommended by W1GHZ is close enough to that. Dissipated power in this case is 0.1 watt, so a 1206 case chip resistor will do.
You could probably optimize NF for the SGA-4586 by adjusting the voltage/current but I don't know that I want to bother. I don't have a NF meter anyway.

It should be interesting to play with these though.

73, Zack W9SZ

On Tue, May 18, 2010 at 9:41 AM, thepalmhq <thepalmhq@...> wrote:

>
>
> Thanks Scott and Zack. It looks like those INA-10386s are still available
> from rfextra, at least right now.
>
> My friend Chris, KF9OP, says that noise factor is 10 dB more important than
> gain (maybe 20 dB more important, he says, but that's probably a stretch
> ;o). You can always get more gain, but once it's lost in the noise, it's
> lost for good, right?
>
> I do want to note that those who received parts as part of the group buy
> sponsored by W8ISS do need to change the bias resistor for the SGA-4586. So
> it's worth double-checking. I'm swapping mine today.
>
> 73,
>
> David W9HQ
>
>
> --- In
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>,
> Zack Widup <w9sz.zack@...> wrote:
> >
> > One of my favorite eBay sellers, rfextra, was selling packages of 10
> > INA-10386 for $20 plus a reasonable shipping rate. I bought two

> > packages from him. He may still have some for sale too.
> >
>
>
>

25. Re: [w1ghz-transverter-builders] 1296 xvrtr -- Massive LO output and no 1296MHz, Mixer let loose?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-18 21:19:29 UTC
From: Scott
Topic: 21 Message: 25

kf4ylm wrote:
>
> Put together the 1296 xverter a while back, and seemed to work fine.
> Added a "1-watt" PHEMT amp kit from Mark at MiniKits in Australia
> (highly recommended), and build an evanescent-mode waveguide filter as
> Paul described in QEX a while back on the output. All came together fine.
>

You might want to put the filter between the transverter and the 1W amp.
Once any 1152 leaks through, it is likely to be amplified by the brick
PA module.
>
>
> Went to the hilltop to put it on the air, and suddenly all I get on
> the filter input is the 1152 LO freq... at nearly 1 watt! Spec
> analyzer shows nil on 1296.... or 129x (changing IF freq up and down),
> even before the filter.
>

Is your 144 MHz I.F. making it to the mixer? maybe a bad coupling
capacitor or solder joint. Also look at the mixer connections under a
magnifying glass. Make sure there isn't a solder bridge from the
IF/LO/RF pins to ground. It's pretty easy to do that (ask me how I know)....

>
> Poked around on the board, pressing here and there thinking there
> might be a loose solder joint somewhere. Still nothing but LO.
>
> I have a grudge against the mixer at this point, but I think it might
> be a little unfounded. Thoughts?
>

The mixer may have gotten "smoked", but fairly unlikely with your -4 dBm
drive at 144.

>
> Have the PA mounted against the back wall of my chassis, unshielded
> from the LO and xvrtr boards, but bench test proved OK when it was
> installed.
>
> Driving with -4dBm to keep the PA output happy and clean. Driven from
> an old IC-251A that has the last three stages of its PA jumped out. I
> can make details on that mod available if anyone else is thinking of
> using this as an IF strip.
>

I wrote up a similar mod for the Central States VHF Proceedings (2009).
I use the 251A as well. All one has to do is pull off jumper J2 on the
PC board under the top cover. This removes DC power to the driver and PA
stages. I get about -8dBm out of mine (which is just the RF leakage
through the now "dead" stages. No effect on receive.
>
>
> Haven't put a sig gen on it yet to see what she's doing in receive...
> guess that would be one place to start. Might be a week or so before I
> can get to a properly equipped lab and sit down in front of one of
> those things.
>
> Wondering if anyone has another idea on where else to start
> troubleshooting before I get the iron out and start hacking on the
> thing. Anyone else seen this problem on their unit.
>

Check the DC voltages on all the MMICs.

>
> Also put 902 together, and hope to have it packaged up before the June
> 'test.
>
> 73,
> - Josh / KF4YLM
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

26. Air-cooled dummy load

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 00:08:44 UTC
From: gary rheuark
Topic: 26 Message: 26
Attachments: 1 described; binary payloads are missing from this source WARC

Hello everyone, Mike W5PNI, Don, AE5K and Larry, K5TTN make sure that I get my medicine everyday. This article shows how easy it is to throw away a handful of DBs without trying. I am working on a point 4 DB Noise Figure preamp for 1296 mhz on a simple PCB. All of the simulations show better than point 4 DBs.....Gary.....K5QNM

27. Potential for a group buy?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 03:56:00 UTC
From: WE7X@aol.com
Topic: 27 Message: 27

Group,
Is there any possibility of a group buy for boards and parts?
I was under the impression that someone I knew had bougt a kit, but now I find out he only bought some boards and maybe some inductors or transformers.
Buying those SM parts in ones and twos is rather expensive. Has anyone else expressed an interest in doing a group purchase of the boards and parts?
I have not even seen a board yet, much less seen the circuitry or parts list.
I know it is quite a bit of work to buy, count, sort and and package the parts. Does anyone have an idea of the cost of all the necessary parts, when buying in quantities for one board?

Thanks,
Rod
issaquah, WA.

28. Re: [w1ghz-transverter-builders] Potential for a group buy?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 12:05:12 UTC
From: Vince Mulhollon
Topic: 27 Message: 28

On Tue, May 18, 2010 at 11:56:00PM -0400, WE7X@... wrote:
> Is there any possibility of a group buy for boards and parts?

Sounds like WE7X is in. I'm in. (N9NFB) Thats two possible customers.

> Buying those SM parts in ones and twos is rather expensive. Has anyone

Oh boy if you think onesie-twosie SMD components are expensive, wait till you see the cost of onesie-twosie PCBs... If you have to pay like $75 just for one well made teflon / thru hole / plated / screened board, the downeast microwave kits are starting to look cheap... Of course in 10 to 20 dB larger production runs, board costs drop by like 10 dB, at which point I'm totally in... Although I've heard board costs have dropped in recent years, impact of the great recession, China, etc.

There are also design issues. In onesie-twosie quantities, spending several square inches on a printed filter, at a couple bucks per square inch of PCB, is not economically viable when you can buy onesie-twosie filters from minicircuits for like $2. Of course if you get PCBs in extreme quantity, reducting the $ per sq inch to practically nothing, then a printed PCB interdigital filter drops in price to a small multiple of nothing, at which point PCB filters are a great idea.

73 DE N9NFB EN53ua

29. Re: [w1ghz-transverter-builders] Potential for a group buy?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 12:14:56 UTC
From: Scott
Topic: 27 Message: 29

I am unaware of a kit ever being offered for the 902 MHz and up boards.
There WAS a kit offered for Paul's 222 transverter.

Electronic parts for these are usually about 10 for $1 for the chip caps
and chip resistors. Quite a few values of these are the same in the
different transverters, so you will be able to use some leftovers from
one transverter on the next one. $20-$30 should get enough chip parts to
almost make 2 transverters (minus the MMICs, mixer, etc.), such as a
1296 and maybe a 2304 or 3456 unit...I've posted the Excel spreadsheet
in the files section of the group page.

You can go to DigiKey's website and enter the part number into the
search box at the top of the page and it will take you directly to the
page with pricing for that part.

Scott
N0EDV

http://www.digikey.com/

WE7X@... wrote:
>
> Group,
> Is there any possibility of a group buy for boards and parts?
> I was under the impression that someone I knew had bougt a kit, but
> now I find out he only bought some boards and maybe some inductors or
> transformers.
> Buying those SM parts in ones and twos is rather expensive. Has anyone
> else expressed an interest in doing a group purchase of the boards and
> parts?
> I have not even seen a board yet, much less seen the circuitry or
> parts list.
> I know it is quite a bit of work to buy, count, sort and and package
> the parts. Does anyone have an idea of the cost of all the necessary
> parts, when buying in quantities for one board?
> Thanks,
> Rod
> issaquah, WA.
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

30. New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 12:18:03 UTC
From: w1ghz-transverter-builders@yahoogroups.co
Topic: 30 Message: 30

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the w1ghz-transverter-builders
group.

File : /Parts List/partslist-1.xls
Uploaded by : jracepilot <acepilot@...>
Description : Each Unit has a tab at the bottom

You can access this file at the URL:
http://groups.yahoo.com/group/w1ghz-transverter-builders/files/Parts%20List/partslist-1.xl
s

To learn more about file sharing for your group, please visit:
http://help.yahoo.com/l/us/yahoo/groups/original/members/forms/general.htmlfiles

Regards,

jracepilot <acepilot@...>

31. Re: [w1ghz-transverter-builders] Potential for a group buy?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 12:34:03 UTC
From: Ethan Miller K8GU
Topic: 27 Message: 31

Rod,

I naively failed to buy at least the boards for the 2304 and 3456 units and LOs when I bought the 903 and 1296 kits through W8ISS, et al, last Fall. So, I would be interested in boards for those bands, and possibly complete kits if the price is right.

I'm in the process of homebrewing transverters (and antennas) for the lower bands and rebuilding the power supply in a TS-930; so, these are not a high priority for me right now. But, it would be nice to have the boards on-hand.

73,

--Ethan, K8GU/3.
http://www.k8gu.com/

32. Re: [w1ghz-transverter-builders] New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 17:17:55 UTC
From: Zack Widup
Topic: 30 Message: 32

I haven't tried yet but can anyone upload files to the site? I have various things that might be useful - transverter IF switch, the KD6OZH low-noise PLL circuit, etc.

73, Zack W9SZ

On Wed, May 19, 2010 at 7:18 AM, <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
>
> Hello,
>
> This email message is a notification to let you know that
> a file has been uploaded to the Files area of the
> w1ghz-transverter-builders
> group.
>
> File : /Parts List/partslist-1.xls
> Uploaded by : jracepilot <acepilot@... <acepilot%40bloomer.net>>
> Description : Each Unit has a tab at the bottom
>
> You can access this file at the URL:
>
> http://groups.yahoo.com/group/w1ghz-transverter-builders/files/Parts%20List/partslist-1.xls
>
> To learn more about file sharing for your group, please visit:
>
> http://help.yahoo.com/l/us/yahoo/groups/original/members/forms/general.htmlfiles
>
> Regards,
>
> jracepilot <acepilot@... <acepilot%40bloomer.net>>
>
>
>
>

33. Re: [w1ghz-transverter-builders] Potential for a group buy?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 17:28:33 UTC
From: Zack Widup
Topic: 27 Message: 33

The boards Paul is offering are dirt cheap. I bought one set of 903 LO/transverter and three sets of 1296 LO/transverter and thought I was getting a deal!

I make most of my own boards but these were too inexpensive for me to fool around with making my own.

73, Zack W9SZ

On Wed, May 19, 2010 at 7:05 AM, Vince Mulhollon <vince@...>wrote:

>
>
> On Tue, May 18, 2010 at 11:56:00PM -0400, WE7X@... <WE7X%40aol.com>wrote:
> > Is there any possibility of a group buy for boards and parts?
>
> Sounds like WE7X is in. I'm in. (N9NFB) Thats two possible customers.
>
>
> > Buying those SM parts in ones and twos is rather expensive. Has anyone
>
> Oh boy if you think onesie-twosie SMD components are expensive, wait
> till you see the cost of onesie-twosie PCBs... If you have to pay like
> $75 just for one well made teflon / thru hole / plated / screened board,
> the downeast microwave kits are starting to look cheap... Of course
> in 10 to 20 dB larger production runs, board costs drop by like 10 dB,
> at which point I'm totally in... Although I've heard board costs have
> dropped in recent years, impact of the great recession, China, etc.
>
> There are also design issues. In onesie-twosie quantities, spending
> several square inches on a printed filter, at a couple bucks per square
> inch of PCB, is not economically viable when you can buy onesie-twosie
> filters from minicircuits for like $2. Of course if you get PCBs in
> extreme quantity, reducting the $ per sq inch to practically nothing,
> then a printed PCB interdigital filter drops in price to a small multiple
> of nothing, at which point PCB filters are a great idea.
>
> 73 DE N9NFB EN53ua
>
>
>

34. ADE-1 Mixers

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 19:27:10 UTC
From: gary rheuark
Topic: 34 Message: 34

Hello to the gang: in the search for 1 or 2 parts, I have 10 or 15 Minicircuits ADE-1 mixers that I can part with. I will come up with some reasonable price and postage. Although I have 400+ line items in inventory, none of the parts go on the PCBs or make up a kit.

I didn't know that DEMI made filters on PCB. I will have to go out and look at what they have.....Gary.....K5QNM

35. Re: [w1ghz-transverter-builders] Potential for a group buy?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 20:16:48 UTC
From: James French
Topic: 27 Message: 35

Hello Everyone.

I see that there is talk of another group purchase...:)

I did the one last year because it gave me something to do while I was off work on a work related injury and had the time to devote to it. It WILL take a LOT of time and effort on the part of whoever (whomever) starts this up and a lot of decisions will have to be made wether to accept Paypal, money orders, checks, and such. Plus refunding money if you find that you can which I did but I will have to admit that I did keep a few dollars from each of the purchasers just to keep the XYL happy and off my case about why are you doing this for free. She does not understand the concept about getting others on the air and active...:(

Plus when you order the parts, try NOT to use UPS if you can. That caused my biggest headache during the purchase. UPS finally delivered the Mini-Circuit parts along with a package the XYL was waiting for on a Sunday night while we were out grocery shopping. No note saying sorry or anything.

As for the parts, I have been getting emails from Digi-key recently about a few of the SMD capacitors and resistors being discountinued and a replacement being offered. Sorry to say I did not save those emails. So be aware of that.

As for the change in the resistor for the SGA3586Z, I am not a technical person and was going more by the list that I had gotten from the 4 State Microwave group purchase and comparing it to W1GHZ's part list. I could not find the INA, so I used what the 4S group had substituted. I overlooked that problem and personally would never have caught it either. Sorry about that phoobar there.

If anyone needs a few parts that I have extra left over because I bought in quantities that brought price down significantly, let me know what your looking for. I might just have it. I do not have any extra parts that would have come from Mini-Circuits or Electronic Goldmine as I ordered just enough of those for the purchase.

I do have the folowing parts and boards left over if anyone is interested:
3 relay parts kits (one is missing the capacitor) - 4 dollars each
2 Relay PC boards - 3 dollars each
2 2304/3456 PC boards - 8 dollars
plus postage

James W8ISS

36. Guidelines for mounting LO/transverter/PA boards in enclosures?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 20:53:52 UTC
From: thepalmhq
Topic: 36 Message: 36

I applied some RF to my 902 MHz transverter board today and got 15 dBm out of it with 1 dBm of IF drive. There are a few spurs, of course, which I hope to knock down with a Murata GIGAFIL bandpass filter on the output.

So, it would seem that I'm within spitting distance of putting this thing in an enclosure. I wonder if those in the know could share some guidelines for this.

What is necessary in terms of board placement in order to keep things quiet? I think I've read that mounting the boards so that the components face the metal enclosure and the ground plane faces out can be helpful. Would anybody second this?

Is placement of the LO and transverter boards with respect to each other critical? Can the LO and transverter boards be stacked? If so, is ground plane to ground plane the right orientation?

Is it worth running power using coax, or is it sufficient to have ferrite beads on the power lines? If the latter, should both power and ground leads have ferrites? Should power come from a common source out to each board in the enclosure individually, or should power be daisy-chained, or doesn't it matter?

What should be the physical placement of any amplifier stages with respect to both LO and transverter boards? Do these need to be isolated from each other with an RF barrier of some sort?

Thanks and 73,

David W9HQ

37. Re: [w1ghz-transverter-builders] New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-19 21:46:52 UTC
From: Scott
Topic: 30 Message: 37

Yes, anyone can upload files. Just be sure to be signed in and then go
to "Files" section and create a new folder there and upload files to it.

Scott
N0EDV

Zack Widup wrote:
>
> I haven't tried yet but can anyone upload files to the site? I have
> various things that might be useful - transverter IF switch, the
> KD6OZH low-noise PLL circuit, etc.
>
> 73, Zack W9SZ
>
> On Wed, May 19, 2010 at 7:18 AM,
> <w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>> wrote:
>
>
>
>
> Hello,
>
> This email message is a notification to let you know that
> a file has been uploaded to the Files area of the
> w1ghz-transverter-builders
> group.
>
> File : /Parts List/partslist-1.xls
> Uploaded by : jracepilot <acepilot@...
> <mailto:acepilot%40bloomer.net>>
> Description : Each Unit has a tab at the bottom
>
> You can access this file at the URL:
> http://groups.yahoo.com/group/w1ghz-transverter-builders/files/Parts%20List/partslist-1.
xls
> <http://groups.yahoo.com/group/w1ghz-transverter-builders/files/Parts%20List/partslist-1
.xls>
>
>
> To learn more about file sharing for your group, please visit:
> http://help.yahoo.com/l/us/yahoo/groups/original/members/forms/general.htmlfiles
> <http://help.yahoo.com/l/us/yahoo/groups/original/members/forms/general.htmlfiles>
>

> Regards,
>
> jracepilot <acepilot@... <mailto:acepilot%40bloomer.net>>
>
>
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

38. Re: [w1ghz-transverter-builders] Potential for a group buy?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-20 03:48:11 UTC
From: k4esa@yahoo.com
Topic: 27 Message: 38

I have two inbuilt 902 kits with lo kits I got last year
Sent from my Verizon Wireless BlackBerry

-----Original Message-----
From: Scott <acepilot@bloomer.net>
Date: Wed, 19 May 2010 12:14:56
To: <w1ghz-transverter-builders@yahoogroups.com>
Subject: Re: [w1ghz-transverter-builders] Potential for a group buy?

I am unaware of a kit ever being offered for the 902 MHz and up boards.
There WAS a kit offered for Paul's 222 transverter.

Electronic parts for these are usually about 10 for $1 for the chip caps
and chip resistors. Quite a few values of these are the same in the
different transverters, so you will be able to use some leftovers from
one transverter on the next one. $20-$30 should get enough chip parts to
almost make 2 transverters (minus the MMICs, mixer, etc.), such as a
1296 and maybe a 2304 or 3456 unit...I've posted the Excel spreadsheet
in the files section of the group page.

You can go to DigiKey's website and enter the part number into the
search box at the top of the page and it will take you directly to the
page with pricing for that part.

Scott
N0EDV

http://www.digikey.com/

WE7X@aol.com wrote:
>
> Group,
> Is there any possibility of a group buy for boards and parts?
> I was under the impression that someone I knew had bougt a kit, but
> now I find out he only bought some boards and maybe some inductors or
> transformers.
> Buying those SM parts in ones and twos is rather expensive. Has anyone
> else expressed an interest in doing a group purchase of the boards and
> parts?
> I have not even seen a board yet, much less seen the circuitry or
> parts list.
> I know it is quite a bit of work to buy, count, sort and and package
> the parts. Does anyone have an idea of the cost of all the necessary
> parts, when buying in quantities for one board?
> Thanks,
> Rod
> issaquah, WA.

>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

Yahoo! Groups Links

39. 900 MHz amplifier modules on EBay

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-21 20:23:04 UTC
From: thepalmhq
Topic: 39 Message: 39

There is a vendor on EBay that has some Motorola RF amplifier modules that may be of interest to the group. They're marked for 700-900 MHz, so are at least good for the 902 MHz transverter, but I wonder if they wouldn't at least do something at 1296 MHz too. I have been unable to find a datasheet, but I bought a couple. Here's the link:

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=190379696006&ssPageName=STRK:MEWAX:IT

They also have some RF transistors and some chassis mount BNC connectors on sale right now. Hope this is helpful to someone.

73,

David W9HQ

40. Re: [w1ghz-transverter-builders] 900 MHz amplifier modules on EBay

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-21 21:26:54 UTC
From: Zack Widup
Topic: 39 Message: 40

The price of those is certainly good!

My experience with these modules is that they have internal matching networks and are band-limited to what frequencies they specify. It is possible to add some external tuning parts but they generally are a lot easier to match at below the specified frequency band than they are at higher frequencies. It may be impossible to get a match at 1296.

I got a couple modules from a guy a few years ago that I THINK was part number M67777. I have never seen them for sale broadly in the USA and it appears they were made for some product on the Japanese market. But they are Class A modules for 900 MHz that give 10 watts out (+40 dBm) for 1 mW in (0 dBm). I wish I knew where to get more!

73, Zack W9SZ

On Fri, May 21, 2010 at 3:23 PM, thepalmhq <thepalmhq@...> wrote:

>
>
> There is a vendor on EBay that has some Motorola RF amplifier modules that
> may be of interest to the group. They're marked for 700-900 MHz, so are at
> least good for the 902 MHz transverter, but I wonder if they wouldn't at
> least do something at 1296 MHz too. I have been unable to find a datasheet,
> but I bought a couple. Here's the link:
>
>
> http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=190379696006&ssPageName=STRK:MEWAX:IT
>
> They also have some RF transistors and some chassis mount BNC connectors on
> sale right now. Hope this is helpful to someone.
>
> 73,
>
> David W9HQ
>
>
>

41. Re: [w1ghz-transverter-builders] 900 MHz amplifier modules on EBay

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-24 15:34:24 UTC
From: Joshua M. Arritt
Topic: 39 Message: 41

Some of the older analog cellular "bag phones" have similar modules with
much lower power rating (2-3W range) that could also work on the 902
band, just out of their specified range, with some gentle modification
to the pallet. I've been collecting these phones from co-workers and
"pack-rat" friends who "never throw anything away", and have been mining
the PAs.

If time allows and I get one to sing on 902 sometime soon, I'll post the
results to this group.

- Josh / KF4YLM

Zack Widup wrote:
>
>
> The price of those is certainly good!
>
> My experience with these modules is that they have internal matching
> networks and are band-limited to what frequencies they specify. It is
> possible to add some external tuning parts but they generally are a
> lot easier to match at below the specified frequency band than they
> are at higher frequencies. It may be impossible to get a match at 1296.
>
> I got a couple modules from a guy a few years ago that I THINK was
> part number M67777. I have never seen them for sale broadly in the USA
> and it appears they were made for some product on the Japanese market.
> But they are Class A modules for 900 MHz that give 10 watts out (+40
> dBm) for 1 mW in (0 dBm). I wish I knew where to get more!
>
> 73, Zack W9SZ
>
> On Fri, May 21, 2010 at 3:23 PM, thepalmhq <thepalmhq@...
> <mailto:thepalmhq@...>> wrote:
>
>
>
>
> There is a vendor on EBay that has some Motorola RF amplifier
> modules that may be of interest to the group. They're marked for
> 700-900 MHz, so are at least good for the 902 MHz transverter, but
> I wonder if they wouldn't at least do something at 1296 MHz too. I
> have been unable to find a datasheet, but I bought a couple.
> Here's the link:
>
> http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=190379696006&ssPageName=STRK:MEWAX:IT
>
<http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=190379696006&ssPageName=STRK:MEWAX:IT>

>
> They also have some RF transistors and some chassis mount BNC
> connectors on sale right now. Hope this is helpful to someone.
>
> 73,
>
> David W9HQ
>
>
>
>
>

42. Re: [w1ghz-transverter-builders] 900 MHz amplifier modules on EBay

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-24 15:56:05 UTC
From: gary rheuark
Topic: 39 Message: 42

Hello Josh, I bought 4 of the Motorola hand-bag cell phones at the local flea markets and they had the SAU-33 power amp module in them. They are good for 3 watts out with just a few mw of drive. I put one of the amps on the network analyzer and swept the frequency from 100 to 1300 mhz. The amps had the predictable power hump at 900, but surprisingly, had a higher power hump at 432 mhz, some 4 watts.....Gary.....K5QNM

From: Joshua M. Arritt <jarritt@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Mon, May 24, 2010 10:34:24 AM
Subject: Re: [w1ghz-transverter-builders] 900 MHz amplifier modules on EBay

Some of the older analog cellular "bag phones" have similar modules with much lower power rating (2-3W range) that could also work on the 902 band, just out of their specified range, with some gentle modification to the pallet. I've been collecting these phones from co-workers and "pack-rat" friends who "never throw anything away", and have been mining the PAs.

If time allows and I get one to sing on 902 sometime soon, I'll post the results to this group.

  - Josh / KF4YLM

Zack Widup wrote:
>
>
> The price of those is certainly good!
>
> My experience with these modules is that they have internal matching
> networks and are band-limited to what frequencies they specify. It is
> possible to add some external tuning parts but they generally are a
> lot easier to match at below the specified frequency band than they
> are at higher frequencies. It may be impossible to get a match at 1296.
>
> I got a couple modules from a guy a few years ago that I THINK was
> part number M67777. I have never seen them for sale broadly in the USA
> and it appears they were made for some product on the Japanese market.
> But they are Class A modules for 900 MHz that give 10 watts out (+40
> dBm) for 1 mW in (0 dBm). I wish I knew where to get more!
>
> 73, Zack W9SZ
>
> On Fri, May 21, 2010 at 3:23 PM, thepalmhq <thepalmhq@gmail.com
> <mailto:thepalmhq@...>> wrote:
>

>
>
>   There is a vendor on EBay that has some Motorola RF amplifier
>   modules that may be of interest to the group. They're marked for
>   700-900 MHz, so are at least good for the 902 MHz transverter, but
>   I wonder if they wouldn't at least do something at 1296 MHz too. I
>   have been unable to find a datasheet, but I bought a couple.
>   Here's the link:
>
>
http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=190379696006&ssPageName=STRK:MEWAX:IT
>
<http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=190379696006&ssPageName=STRK:MEWAX:IT>
>
>   They also have some RF transistors and some chassis mount BNC
>   connectors on sale right now. Hope this is helpful to someone.
>
>   73,
>
>   David W9HQ
>
>
>
>
>

Yahoo! Groups Links

43. 1296 MHz modules on EBay

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-24 18:59:25 UTC
From: thepalmhq
Topic: 43 Message: 43

For those who need a couple of watts on 1296 MHz, Alan (VK3XPD) has told me that the parts listed by the seller below will do about 2 watts on 1296 with a few milliwatts of drive. Here's his note to me:

"Looking at Pins in front of you.. the Left Pin is In, Right is Out & the 2 centre Pins are +24 Volts. It will draw about 525mA. Do not exceed 10 milliwatts Drive & bypass the +24 Pins with 10 uF, 100 or 10 nF & a 1nf Cap(s)."

The 24 VDC power is a bit of a downer.

The seller is in China. It looks like he has a bunch of these.

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=260476946762&ssPageName=STRK:MEWAX:IT

Seems like a pretty good price/watt. At some point I will probably be ordering a few, unless somebody has a better suggestion for a few watts on 1296 MHz.

73,

David W9HQ

44. Re: [w1ghz-transverter-builders] 1296 MHz modules on EBay

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-24 19:32:12 UTC
From: Scott
Topic: 43 Message: 44

http://www.rfparts.com/pdf_docs/RA/RA18H1213G.pdf

This module should give about 4W with 10 mW drive at 1296.

It's not designed as a linear device, but datasheet says you can do
linear. Set Idd to the DC current from the 1300 MHz chart according to
the drive power you have (ie ~4A with 10 mW drive). The Vgg pin cotrols
the current. Start with Vgg at 0V and increase until you have the
current you need (with no RF drive applied). Once set, this voltage
should be switched off during RX and come on during TX to save
dissipation and a lot of heat (it's only needed to be on when transmitting).

Scott
N0EDV

thepalmhq wrote:
>
> For those who need a couple of watts on 1296 MHz, Alan (VK3XPD) has
> told me that the parts listed by the seller below will do about 2
> watts on 1296 with a few milliwatts of drive. Here's his note to me:
>
> "Looking at Pins in front of you.. the Left Pin is In, Right is Out &
> the 2 centre Pins are +24 Volts. It will draw about 525mA. Do not
> exceed 10 milliwatts Drive & bypass the +24 Pins with 10 uF, 100 or 10
> nF & a 1nf Cap(s)."
>
> The 24 VDC power is a bit of a downer.
>
> The seller is in China. It looks like he has a bunch of these.
>
> http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=260476946762&ssPageName=STRK:MEWAX:IT
>
<http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=260476946762&ssPageName=STRK:MEWAX:IT>
>
> Seems like a pretty good price/watt. At some point I will probably be
> ordering a few, unless somebody has a better suggestion for a few
> watts on 1296 MHz.
>
> 73,
>
> David W9HQ
>
>

--
Scott

http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

45. Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-26 13:16:16 UTC
From: thepalmhq
Topic: 45 Message: 45

I'm pushing to have at least my 902 transverter ready for the June contest. If all goes as planned, I'm going to drive an Analog Devices ADL5320 to get about 300 mW and then a Motorola MHW820-3 to get about 18 watts. That much I think I can get done between now and then.

My question is, what is the simplest sequencing I can get away with for this set-up? Can I just rig a relay that will toggle on PTT to apply the +8 VDC to the transmit side of the transverter when PTT is asserted and +8 VDC to receive when it's not? I suspect this is all that's needed when the transverter is run barefoot, but I'm wondering if I need more when I add the PA stages mentioned above?

It needs to be simple to get done before the contest, but if I really truly need more then maybe I can scramble to order, say, a W6PQL sequencer board.

Thanks and 73,

David W9HQ

46. Re: [w1ghz-transverter-builders] Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-26 13:54:22 UTC
From: Zack Widup
Topic: 45 Message: 46

All my transverters have been using that basic sequence for years and I have not suffered any damage or difficulties due to it. Theoretically you want to turn the receive line off first, then switch the relay, then power up the trnasmit chain. Then do the reverse for receive. This is supposed to keep you from burning out a relay, power amp or LNA but by using the manual transmit-receive switch on my IF rig, it seems no RF spike that I can measure gets out on the transmit line until I start to talk or hit the key a moment later.

73, Zack W9SZ

On Wed, May 26, 2010 at 8:16 AM, thepalmhq <thepalmhq@...> wrote:

>
>
> I'm pushing to have at least my 902 transverter ready for the June contest.
> If all goes as planned, I'm going to drive an Analog Devices ADL5320 to get
> about 300 mW and then a Motorola MHW820-3 to get about 18 watts. That much I
> think I can get done between now and then.
>
> My question is, what is the simplest sequencing I can get away with for
> this set-up? Can I just rig a relay that will toggle on PTT to apply the +8
> VDC to the transmit side of the transverter when PTT is asserted and +8 VDC
> to receive when it's not? I suspect this is all that's needed when the
> transverter is run barefoot, but I'm wondering if I need more when I add the
> PA stages mentioned above?
>
> It needs to be simple to get done before the contest, but if I really truly
> need more then maybe I can scramble to order, say, a W6PQL sequencer board.
>
> Thanks and 73,
>
> David W9HQ
>
>
>

47. Re: [w1ghz-transverter-builders] Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-26 20:53:48 UTC
From: Scott
Topic: 45 Message: 47

Go with the W6PQL. It only takes about 30-45 minutes to build. Then you'll be done with sequencing. He takes Paypal, so orders can go out quick. Maybe drop him an email and tell him you're in a bit of a rush and I'm sure he'll get it out quickly. You DEFITELY want sequencing if you're going to run an external PA.

thepalmhq wrote:
>
> I'm pushing to have at least my 902 transverter ready for the June
> contest. If all goes as planned, I'm going to drive an Analog Devices
> ADL5320 to get about 300 mW and then a Motorola MHW820-3 to get about
> 18 watts. That much I think I can get done between now and then.
>
> My question is, what is the simplest sequencing I can get away with
> for this set-up? Can I just rig a relay that will toggle on PTT to
> apply the +8 VDC to the transmit side of the transverter when PTT is
> asserted and +8 VDC to receive when it's not? I suspect this is all
> that's needed when the transverter is run barefoot, but I'm wondering
> if I need more when I add the PA stages mentioned above?
>
> It needs to be simple to get done before the contest, but if I really
> truly need more then maybe I can scramble to order, say, a W6PQL
> sequencer board.
>
> Thanks and 73,
>
> David W9HQ
>
>

--
Scott
http://corbenflyer.tripod.com/
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48. Re: [w1ghz-transverter-builders] Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-27 01:50:32 UTC
From: David Palm
Topic: 45 Message: 48

You're right, Scott. I ordered a W6PQL board tonight; Jim is going to ship it tomorrow. Then all will be safe. Why be penny wise.....?

Thanks for all your input on my on-going project and plans.

73,

David W9HQ

Can I assume that I just put the

On 5/26/10, Scott <acepilot@...> wrote:
>
> Go with the W6PQL. It only takes about 30-45 minutes to build. Then
> you'll be done with sequencing. He takes Paypal, so orders can go out
> quick. Maybe drop him an email and tell him you're in a bit of a rush
> and I'm sure he'll get it out quickly. You DEFITELY want sequencing if
> you're going to run an external PA.
>
>
>
>
> thepalmhq wrote:
> >
> > I'm pushing to have at least my 902 transverter ready for the June
> > contest. If all goes as planned, I'm going to drive an Analog Devices
> > ADL5320 to get about 300 mW and then a Motorola MHW820-3 to get about
> > 18 watts. That much I think I can get done between now and then.
> >
> > My question is, what is the simplest sequencing I can get away with
> > for this set-up? Can I just rig a relay that will toggle on PTT to
> > apply the +8 VDC to the transmit side of the transverter when PTT is
> > asserted and +8 VDC to receive when it's not? I suspect this is all
> > that's needed when the transverter is run barefoot, but I'm wondering
> > if I need more when I add the PA stages mentioned above?
> >
> > It needs to be simple to get done before the contest, but if I really
> > truly need more then maybe I can scramble to order, say, a W6PQL
> > sequencer board.
> >
> > Thanks and 73,
> >
> > David W9HQ
> >
> >
>

>
> --
> Scott
> http://corbenflyer.tripod.com/
> Flying Corben Junior Ace - Building RV-4
> Gotta Fly or Gonna Die
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> Yahoo! Groups Links
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49. Re: [w1ghz-transverter-builders] Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-27 02:25:11 UTC
From: Scott
Topic: 45 Message: 49

Yup...you won't regret it! Just be sure that you mount it on some sort
of standoffs...there are a couple traces on the bottom of the board that
must NOT contact ground! It's noted in the instructions if I recall....

N0EDV

David Palm wrote:
>
>
> You're right, Scott. I ordered a W6PQL board tonight; Jim is going to
> ship it tomorrow. Then all will be safe. Why be penny wise.......?
>
> Thanks for all your input on my on-going project and plans.
>
> 73,
>
> David W9HQ
>
>

50. Rack mount cases for W1GHZ boards

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-27 12:24:49 UTC
From: James French
Topic: 50 Message: 50

A suggestion for packaging the W1GHZ transverter boards.

If any of you have some of these handy and just laying around gathering dust, heres what I have planned for my 902MHz boards to mount in: http://w8iss.wordpress.com/page/2/

Look for the Pico-maccom pictures I have posted there to see how they are to fit in the 19" rack unit.

The Pico-Maccom units I am refering to are the old TV modulators for cable systems that I had picked up at Dayton about three years ago to use for my FS-ATV stuff but never did...:(Another one of those projects that getys put to the wayside.

The model number for the Pico unit is PCM55.

After stripping the guts out (except the 12v power supply), the boards lay in there nicely. Even some of the stand-off holes fit where you need them to for the W1GHZ boards.

As for the 12volt power supply, I don't know how much power it can handle but I am going to assume that it should be able to handle the transverters for receive at least.

I will post the picture files as soon as I can find the files to the group.

James W8ISS

51. Following up -- 1296 xvrtr -- Massive LO output and no 1296MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-28 11:59:48 UTC
From: Joshua M. Arritt
Topic: 21 Message: 51

Following up on the trouble here:

- Open solder bridge on the mixer IF pin -- very small, but enough to make some loss (hihi)

- Carrier power during the first amplifier test was measured with a Bird watt meter, without any sort of freq. measurement. When we put the transverter on a bench equipped with a spectrum analyzer, found that it was a carrier "close to" the LO freq., but could be wagged around significantly (+/- 600kc or so) by jostling the B+ lead going from the TX B+ pad on the xvrtr board to the 7805 regulator being used to feed the PHEMT PA. Moving this lead off the xvrtr board to the T/R control relay (not the RF relay), and adding a little ferrite material nixed this feedback completely.

- Somehow, I'll shamelessly admit, *every* MMIC on the xvrtr board ended up installed backwards. D'oh! Somehow, I got all the LO MMICs in correctly. These were put together on the same day. I can't even say "at least I was consistent".

After fixing the above, measured S1 RX sensitivity down around -120dBm using the IC-251A as the IF.

Still need to re-tune the PA to 1296, instead of ~1154, where the Bird lead me. Also need to better isolate my keying line out of the IF strip -- forget the details of where I stole a "low" on TX on that thing, but with the xverter hooked up, I lose IF TX output (yup, that whole thing I was seeing on first construction was oscillation!). Independently keying the xvrtr, then the IF, we see valid TX output.

2 weeks to the June 'Test! Hope the above anecdotes will aid fellow builders. Many thanks to Scott for his words of wisdom -- they came in handy!

73,
- Josh / KF4YLM

52. Re: [w1ghz-transverter-builders] Following up -- 1296 xvrtr -- Massive LO output and no 1296MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-28 13:00:41 UTC
From: Zack Widup
Topic: 21 Message: 52

Are people experiencing instability problems with these 903 and 1296 transverter boards? That's one of the reasons I wanted to get away from the original KK7B designs. Rick was of immense help to me in curing the problems, but I had intermittent oscillation problems with his board designs for years.

I was hoping to use the 903 and 1296 W1GHZ designs in the upcoming June contest but the aluminum boxes I ordered to put them in probably won't arrive in time for me to get them done. Maybe one, at least.

73, Zack W9SZ

On Fri, May 28, 2010 at 6:59 AM, Joshua M. Arritt <jarritt@...> wrote:

> Following up on the trouble here:
>
>
> - Open solder bridge on the mixer IF pin -- very small, but enough to
> make some loss (hihi)
>
> - Carrier power during the first amplifier test was measured with a Bird
> watt meter, without any sort of freq. measurement. When we put the
> transverter on a bench equipped with a spectrum analyzer, found that it
> was a carrier "close to" the LO freq., but could be wagged around
> significantly (+/- 600kc or so) by jostling the B+ lead going from the
> TX B+ pad on the xvrtr board to the 7805 regulator being used to feed
> the PHEMT PA. Moving this lead off the xvrtr board to the T/R control
> relay (not the RF relay), and adding a little ferrite material nixed
> this feedback completely.
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> - Somehow, I'll shamelessly admit, *every* MMIC on the xvrtr board ended
> up installed backwards. D'oh! Somehow, I got all the LO MMICs in
> correctly. These were put together on the same day. I can't even say
> "at least I was consistent".
>
>
>
> After fixing the above, measured S1 RX sensitivity down around -120dBm
> using the IC-251A as the IF.
>
>
> Still need to re-tune the PA to 1296, instead of ~1154, where the Bird
> lead me. Also need to better isolate my keying line out of the IF
> strip -- forget the details of where I stole a "low" on TX on that
> thing, but with the xverter hooked up, I lose IF TX output (yup, that

> whole thing I was seeing on first construction was oscillation!).
> Independently keying the xvrtr, then the IF, we see valid TX output.
>
>
> 2 weeks to the June 'Test! Hope the above anecdotes will aid fellow
> builders. Many thanks to Scott for his words of wisdom -- they came in
> handy!
>
>
>
>
> 73,
> - Josh / KF4YLM
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>
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> ------------------------------------
>
> Yahoo! Groups Links
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>

53. Re: [w1ghz-transverter-builders] Following up -- 1296 xvrtr -- Massive LO output and no 1296MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-28 16:05:01 UTC
From: Steve Bunch
Topic: 21 Message: 53

Zack,

I have my 1296 RSU and 1152 LO boards stacked, and in an aluminum box (I sent links earlier with pictures). Playing with the boards on the bench, and later with the boards mounted in the box, using a spectrum analyzer and a signal generator feeding the IF, I never saw any sign of trouble. But when I hooked the box to an IF transceiver (TS-700S, 1W level through a variable attenuator, and also an FT-847 through more attenuation), I was experiencing distortion and birdies on SSB transmit. Screwing the lid on the box tamed it completely -- other than warmup drift, it was totally stable and sounded good. I haven't yet powered-on the 10W brick amplifier that's also inside the aluminum box, so I don't know how that will do. My guess from this limited experience is that the transceiver is not unstable, but you do have to use normal good isolation practices.

73, Steve, K9SRB

From: Zack Widup <w9sz.zack@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Fri, May 28, 2010 8:00:41 AM
Subject: Re: [w1ghz-transverter-builders] Following up -- 1296 xvrtr -- Massive LO output and no 1296MHz

Are people experiencing instability problems with these 903 and 1296 transverter boards? That's one of the reasons I wanted to get away from the original KK7B designs. Rick was of immense help to me in curing the problems, but I had intermittent oscillation problems with his board designs for years.

I was hoping to use the 903 and 1296 W1GHZ designs in the upcoming June contest but the aluminum boxes I ordered to put them in probably won't arrive in time for me to get them done. Maybe one, at least.

73, Zack W9SZ

On Fri, May 28, 2010 at 6:59 AM, Joshua M. Arritt <jarritt@...> wrote:

54. Re: [w1ghz-transverter-builders] Following up -- 1296 xvrtr -- Massive LO output and no 1296MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-28 17:05:35 UTC
From: Scott
Topic: 21 Message: 54

I haven't noted much, if any, instability (ie oscillations) on my 1296 unit. I WAS getting a bit more LO frequency output than I liked. I had initially mounted my 1296 transverter board with the printed filter facing down toward the case, but then I had pretty low 1296 output, so I put it with the filter facing up, away from the case. The LO board was in the other case half with its filter facing toward the transverter board, with about 3/4" between them. I used the trick from WA5VJB and put about a 2" square piece of "microwave absorber" (from the Ore-Ida french fry box, mounted to a pair of 1/2" spacers) above the LO filter. This reduced the amount of LO coming out the antenna and kept my power at 1296 acceptable...still a work in progress :)

Scott
N0EDV

Zack Widup wrote:
> Are people experiencing instability problems with these 903 and 1296
> transverter boards? That's one of the reasons I wanted to get away
> from the original KK7B designs. Rick was of immense help to me in
> curing the problems, but I had intermittent oscillation problems with
> his board designs for years.
> I was hoping to use the 903 and 1296 W1GHZ designs in the upcoming
> June contest but the aluminum boxes I ordered to put them in probably
> won't arrive in time for me to get them done. Maybe one, at least.
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>
> On Fri, May 28, 2010 at 6:59 AM, Joshua M. Arritt <jarritt@...
> <mailto:jarritt@...>> wrote:
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> TX B+ pad on the xvrtr board to the 7805 regulator being used to feed
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> whole thing I was seeing on first construction was oscillation!).
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> 73,
> - Josh / KF4YLM
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> ------------------------------------
>
> Yahoo! Groups Links
>
>
> (Yahoo! ID required)
>
> w1ghz-transverter-builders-fullfeatured@yahoogroups.com
> <mailto:w1ghz-transverter-builders-fullfeatured@yahoogroups.com>
>
>
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

55. Re: [w1ghz-transverter-builders] Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 13:18:17 UTC
From: aa9il@sbcglobal.net
Topic: 45 Message: 55

Howdy to the group
This is my first post here but I recognize lots of names! Yep you will be happy and your mixers and preamps as well...
One trick that I wanted to pass along is that I use a DEMI sequencer (just 4 op amps with RC timing) with A B C D switching - I use 'D' or the last on, first off to complete a circuit for the PTT and key line - that way I cant key the radio until the complete sequence takes place.
73 de Mike
AA9IL

--- On Wed, 5/26/10, Scott <acepilot@...> wrote:

From: Scott <acepilot@...>
Subject: Re: [w1ghz-transverter-builders] Simple sequencing?
To: w1ghz-transverter-builders@yahoogroups.com
Date: Wednesday, May 26, 2010, 9:25 PM

Yup...you won't regret it! Just be sure that you mount it on some sort of standoffs...there are a couple traces on the bottom of the board that must NOT contact ground! It's noted in the instructions if I recall....

N0EDV

David Palm wrote:
>
>
> You're right, Scott. I ordered a W6PQL board tonight; Jim is going to
> ship it tomorrow. Then all will be safe. Why be penny wise.......?
>
> Thanks for all your input on my on-going project and plans.
>
> 73,
>
> David W9HQ
>
>

56. Re: [w1ghz-transverter-builders] Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 14:03:22 UTC
From: Scott
Topic: 45 Message: 56

As Mike notes, THAT is the key! The I.F rig should be the last item to come on during TX and the first thing to go off when going back to RX.

Some of us use external amps and/or pre-amps. The goal of the sequencing (at least in my opinion) is to start at the antenna and work backwards. So in my case (no pre-amp, with external PA), when switching to TX, the T/R relay switches first (I use split RF on my transverters), then the external PA PTT line is activated, then the transverter PTT line is activated and finally, the PTT line that actually keys the IF rig is activated. The IF rig (especially the older ones) may have to be modified to break the original PTT line inside the radio. This is easily accomplished by taking the PTT wire off the back of the mic jack and connecting it to the last output (most delayed) of the sequencer and putting a new wire from the PTT pin of the mic jack to the PTT in of the sequencer (to start the sequence). If you are fortunate enough (ie RICH!) and have a modern rig such as the FT-817 or FT-857 that has an "TX INH" (or equivalent) pin, it's easier. If the TX INH pin is at anything above 1 or 2 Volts, the transmitter will not put out RF. My 857 has this pin and also PTT is available at the CAT/Linear jack on the radio. Simply make a cable and use three pins (TX INH, Gnd, PTT) and wire them as follows....Gnd to system ground, TX INH to the sequencer event 4 (last event) and PTT goes to start the sequencer. This is all assuming that your particular radio uses a positive voltage (say between 1 and 12V) to inhibit the transmitter and that your sequencer provides "ground" signals for each event in the sequence.

Scott
N0EDV

aa9il@... wrote:
>
>
> Howdy to the group
> This is my first post here but I recognize lots of names! Yep you
> will be happy
> and your mixers and preamps as well...
> One trick that I wanted to pass along is that I use a DEMI sequencer
> (just 4
> op amps with RC timing) with A B C D switching - I use 'D' or the last on,
> first off to complete a circuit for the PTT and key line - that way I
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> the radio until the complete sequence takes place.
> 73 de Mike
> AA9IL
>
>

> --- On *Wed, 5/26/10, Scott /<acepilot@...>/* wrote:
>
>
> From: Scott <acepilot@...>
> Subject: Re: [w1ghz-transverter-builders] Simple sequencing?
> To: w1ghz-transverter-builders@yahoogroups.com
> Date: Wednesday, May 26, 2010, 9:25 PM
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> Yup...you won't regret it! Just be sure that you mount it on some
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> of standoffs...there are a couple traces on the bottom of the
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> > Thanks for all your input on my on-going project and plans.
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> > 73,
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> > David W9HQ
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--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

57. Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 14:23:47 UTC
From: thepalmhq
Topic: 45 Message: 57

This is all excellent information. Unfortunately, I think it scuttles me to have 902 or 1296 in place for the June contest. I got the W6PQL sequencer kit, but will need to stuff that board. And the IF rig I'm using is an Icom IC-260A, so I'd have to do the PTT modification that Scott mentions below. Given what I have left to do just to be ready to rove on 50/144/222/432, things are shaping up to be a bit too much for 902/1296 in June. Ah well. Still, as I said, this is great information and I'll have a good shot to have it up and going for August, at least.

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:

As Mike notes, THAT is the key! The I.F rig should be the last item to come on during TX and the first thing to go off when going back to RX.

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Scott
N0EDV

58. Re: [w1ghz-transverter-builders] Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 14:55:50 UTC
From: Scott
Topic: 45 Message: 58

Well, the W6PQL sequencer only takes about 30-45 minutes to
build...maybe an hour. I am not familiar with the 260, but if there is
room to put the sequencer right inside the radio, that would be good.
Also, if there is room on the back panel to drill and mount 3 RCA jacks,
you'd be set!! One Saturday and you'd be up and running :) If I sound
like a cheerleader...GO TEAM GO!!! :)

Scott
N0EDV

thepalmhq wrote:
>
>
> This is all excellent information. Unfortunately, I think it scuttles
> me to have 902 or 1296 in place for the June contest. I got the W6PQL
> sequencer kit, but will need to stuff that board. And the IF rig I'm
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> 73,
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> David W9HQ
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59. Re: [w1ghz-transverter-builders] Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 14:59:11 UTC
From: Zack Widup
Topic: 45 Message: 59

The switching for all my transverters 50 through 10368 MHz is initiated by a line from the IF rig. I use two Realistic HTX-100's. One is an unmodified rig, with the output set at about 3 watts in the "low" position. This is fed into W1VT's microwave transverter IF switch design, which brings the transmit RF down to the milliwatt level, and which there is one of in each transverter from 50 to 432. The other HTX-100 has had its amp heatsink/module removed and a 144 MHz transverter built into the radio. I get milliwatts out of it on 144 MHz.

Some IF radios may produce a burst of RF when switched to transmit, but mine don't. I found that by switching the transmit/receive switch on the front of the radio before speaking into the mic or touching the key gives everything else enough time to switch with no problems. At least it hasn't been a problem at the 10 watt level. I've been using these transverters for 10 years now and have never had a problem with this switching arrangement. When running higher power, I'd probably be more concerned with sequencing.

I would put more effort into having a stable LO than anything else. I used all my transverters with free-running LO's for several years. I mostly use them portable outside. Not only do they run at a different frequency as the temperature outside changes, but they drift quite a bit as the internal parts change temperatures. A change of 10 Hz at the base oscillator frequency will cause a kHz change at 10 GHz. My unstable LO for 10 GHz drifted as much as 3 kHz when trying to make QSO's.

It may be fine when you start out to have to tune around a lot to find the other station and to chase someone up and down the band as you try to work them, but you will get tired of it after a while. All my transverters now use a phase-locked VCXO which is locked to a 10 MHz OCXO. They are quite accurate and stable. Phase noise is also quite good with then OCXO's I'm using.

Another scheme is to use a DFS (direct frequency synthesis) LO. In this case, say you need 96 MHz for a 1296 MHz LO. You'd multiply 10 MHz by 10 to get 100 MHz, divide 10 MHz by 5 to get 2 MHz and then multuply that by 2 to get 4 MHz, then mix that with the 100 MHz and filter the output so you only get the 96 MHz product. DFS is much stabler and accurate and less phase noise than the VCXO-PLL aproach but is more complicated and has its own difficulties. However, it is almost a necessity for the millimiter-wave bands. WA1ZMS has written up quite a bit on his LO schemes for his mm-wave radios.

73, Zack W9SZ

On Mon, May 31, 2010 at 9:23 AM, thepalmhq <thepalmhq@...> wrote:

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> This is all excellent information. Unfortunately, I think it scuttles me to
> have 902 or 1296 in place for the June contest. I got the W6PQL sequencer
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> 73,
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> David W9HQ
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> --- In
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>,
> Scott <acepilot@...> wrote:
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> inhibit the transmitter and that your sequencer provides "ground" signals
> for each event in the sequence.
>
> Scott
> N0EDV
>
>
>

60. Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 15:07:39 UTC
From: Vince
Topic: 45 Message: 60

--- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq" <thepalmhq@...> wrote:

> Unfortunately, I think it scuttles me to have 902 or 1296 in place for the June contest. I got the W6PQL sequencer kit, but will need to stuff that board.

I just built one last thursday. Two hours. My advice:

I downloaded and printed only the schematic, not knowing there was a "high res" picture of a stuffed board on his site. The board is nicely silk screened and 99% of the parts can be stuffed based solely on silk screen, schematic, and parts lists inside each bag. Resistors don't have polarity, the silk screen and some schematic vs PCB investigation quickly indicate pin 1 on the opamp ic, etc.

However, some puzzlers:

1) The transient snubber diodes ... I ended up building a little test rig to figure out anode/cathode. When reversed I went into voltage limit at about 3 V and zero current and forward I went into current limit at a couple mA and 0.6 volts or so. Reverse engineering where the anode and cathode go for a snubber diode on the board was easy enough. So rather than 5 seconds of looking at the picture, I did the traditional "intro to diodes 101" lab. On the bright side, if you get them backwards I believe there would be no component failure, just a stage that would never turn off.

2) Similar fun with the LEDs. Of course its somewhat more obvious when a LED is forward vs reverse biased.

3) And then there's the tantalum SMD cap. I just love how all (or merely most?) manufactures mark the positive side of their caps with a giant minus sign (aka the big black bar). I know about this, but still swear and use inappropriate language every time. Its like selling a battery with a red ground lead, what were they thinking... Someday someone out there is going to sell a tantalum SMD cap with an actual minus sign on the actual minus end, at which time the world will probably end or something.

4) I'll admit to a cold solder joint or two on the quad op amp. Naturally I started troubleshooting at the far opposite end of the circuit, trying to figure out what was wrong with the transistor driver, etc, eventually working my way back to the comparator output pin. Why does the output of this opamp seem to be high impedance, did I fry it by overheating it?... oh thats why. A bit of reflow and I'm all good.

I'll be hard keying my amps by the contest, and maybe buying a mast mounted preamp or two this summer.

So to repeat my advice I could have saved at least 50% time with a printout of the high res photo of the stuffed board from W6PQLs website, make sure to get that in addition to the nice schematic.

It was a fun little kit. An interesting testing note: The LEDs draw about 99% of the power consumed. You may wish to remove them or never install them if you're going battery

operated. Also I have not run the numbers but little SMD transistors can't handle much Ic. So the LEDs are probably drawing about half the current the transistors can handle. Or, I could be wrong.

73 de Vince N9NFB

61. Re: [w1ghz-transverter-builders] Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 17:05:02 UTC
From: Scott
Topic: 45 Message: 61

Vince wrote:
>
>
>
> It was a fun little kit. An interesting testing note: The LEDs draw
> about 99% of the power consumed. You may wish to remove them or never
> install them if you're going battery operated. Also I have not run the
> numbers but little SMD transistors can't handle much Ic. So the LEDs
> are probably drawing about half the current the transistors can
> handle. Or, I could be wrong.
>

Exactly what I did (I left the LEDs out) as I put my sequencer inside the radio so I can't see the cutsie little blinky lights anyways! Yes, it saves power and are not necessary, so you might as well leave them out...the SMD transistor for event 1 is a higher power unit...I think it can handle several hundred mA, which is good for those using 24V SMA relays....

Scott
N0EDV
>
>
> 73 de Vince N9NFB
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

62. Re: [w1ghz-transverter-builders] Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 17:22:17 UTC
From: aa9il@sbcglobal.net
Topic: 45 Message: 62

Howdy all
I like Zack's approach with the HTX100's and have a radio that is ready to dedicate to a 2 mtr IF. BUT, I just got an oldie/goodie IC202 with a blown final. I think the radio will still put out 100mw so I plan to undo the radio's pin diode switch and replace with a dedicated relay on the output and have a break out line to split the RX/TX if needed.

Anyway, not this summer but for next year I plan to get into a DFS 96MHz source for my mmwave stuff. Right now, the main goal is to make sure things are functioning for June and do some rebuild work for the 10G cummulative.

Glad to see all the building/tech talk on the reflector - thats what microwave exprimenting is all about

73 de Mike

--- On Mon, 5/31/10, Zack Widup <w9sz.zack@...> wrote:

From: Zack Widup <w9sz.zack@...>
Subject: Re: [w1ghz-transverter-builders] Re: Simple sequencing?
To: w1ghz-transverter-builders@yahoogroups.com
Date: Monday, May 31, 2010, 9:59 AM

The switching for all my transverters 50 through 10368 MHz is initiated by a line from the IF rig. I use two Realistic HTX-100's. One is an unmodified rig, with the output set at about 3 watts in the "low" position. This is fed into W1VT's microwave transverter IF switch design, which brings the transmit RF down to the milliwatt level, and which there is one of in each transverter from 50 to 432. The other HTX-100 has had its amp heatsink/module removed and a 144 MHz transverter built into the radio. I get milliwatts out of it on 144 MHz.

Some IF radios may produce a burst of RF when switched to transmit, but mine don't. I found that by switching the transmit/receive switch on the front of the radio before speaking into the mic or touching the key gives everything else enough time to switch with no problems. At least it hasn't been a problem at the 10 watt level. I've been using these transverters for 10 years now and have never had a problem with this switching arrangement. When running higher power, I'd probably be more concerned with sequencing.

I would put more effort into having a stable LO than anything else. I used all my transverters with free-running LO's for several years. I mostly use them portable outside. Not only do they run at a different frequency as the temperature outside changes, but they drift quite a bit as the internal parts change temperatures. A change of 10 Hz at the base oscillator frequency will cause a kHz change at 10 GHz. My unstable LO for 10 GHz drifted as much as 3 kHz when trying to make QSO's.

It may be fine when you start out to have to tune around a lot to find the other station and to chase someone up and down the band as you try to work them, but you will get tired of it after a while. All my transverters now use a phase-locked VCXO which is locked to a

10 MHz OCXO. They are quite accurate and stable. Phase noise is also quite good with then OCXO's I'm using.

Another scheme is to use a DFS (direct frequency synthesis) LO. In this case, say you need 96 MHz for a 1296 MHz LO. You'd multiply 10 MHz by 10 to get 100 MHz, divide 10 MHz by 5 to get 2 MHz and then multuply that by 2 to get 4 MHz, then mix that with the 100 MHz and filter the output so you only get the 96 MHz product. DFS is much stabler and accurate and less phase noise than the VCXO-PLL aproach but is more complicated and has its own difficulties. However, it is almost a necessity for the millimiter-wave bands. WA1ZMS has written up quite a bit on his LO schemes for his mm-wave radios.

73, Zack W9SZ

On Mon, May 31, 2010 at 9:23 AM, thepalmhq <thepalmhq@gmail. com> wrote:

This is all excellent information. Unfortunately, I think it scuttles me to have 902 or 1296 in place for the June contest. I got the W6PQL sequencer kit, but will need to stuff that board. And the IF rig I'm using is an Icom IC-260A, so I'd have to do the PTT modification that Scott mentions below. Given what I have left to do just to be ready to rove on 50/144/222/432, things are shaping up to be a bit too much for 902/1296 in June. Ah well. Still, as I said, this is great information and I'll have a good shot to have it up and going for August, at least.

73,

David W9HQ

--- In w1ghz-transverter- builders@ yahoogroups. com, Scott <acepilot@...> wrote:

As Mike notes, THAT is the key! The I.F rig should be the last item to come on during TX and the first thing to go off when going back to RX.

Some of us use external amps and/or pre-amps. The goal of the sequencing (at least in my opinion) is to start at the antenna and work backwards. So in my case (no pre-amp, with external PA), when switching to TX, the T/R relay switches first (I use split RF on my transverters) , then the external PA PTT line is activated, then the transverter PTT line is activated and finally, the PTT line that actually keys the IF rig is activated. The IF rig (especially the older ones) may have to be modified to break the original PTT line inside the radio. This is easily accomplished by taking the PTT wire off the back of the mic jack and connecting it to the last output (most delayed) of the sequencer and putting a new wire from the PTT pin of the mic jack to the PTT in of the sequencer (to start the sequence). If you are fortunate enough (ie RICH!) and have a modern rig such as the FT-817 or FT-857 that has an "TX INH" (or equivalent) pin, it's easier. If the TX INH pin is at anything above 1 or 2 Volts, the transmitter will not put out RF. My 857 has this pin and also PTT is available at the CAT/Linear jack on the radio. Simply make a cable and use three pins (TX INH, Gnd, PTT) and wire them as follows....Gnd to system ground, TX INH to the sequencer event 4 (last event) and PTT goes to start the sequencer. This is all assuming that your particular radio uses a positive voltage (say between 1 and 12V) to inhibit the transmitter and that your sequencer provides "ground" signals for each event in the sequence.

Scott
N0EDV

63. Re: [w1ghz-transverter-builders] Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-05-31 18:05:28 UTC
From: Zack Widup
Topic: 45 Message: 63

I think any all-mode radio will work fine, especially if you don't mind and can figure out disabling the amp section and taking a smaller level of RF out for transmit. I also have an FT290RII to use as an IF rig.

The good thing about the HTX-100 is its price on the used market. A lot of hams got rid of them at the bottom of the sunspot cycle. The second one I got (the one I modified) I paid only $50 for.

One thing to be aware of with these little 10 meter mobile rigs is their history. If they have been in the hands of a ham who did not modify them, it's a great deal, but if they have been hacked up by "freebanders" they can be a mess!

73, Zack W9SZ

On Mon, May 31, 2010 at 12:22 PM, <aa9il@...> wrote:

>
>
> Howdy all
> I like Zack's approach with the HTX100's and have a radio that is ready to
> dedicate to a 2 mtr IF. BUT, I just got an oldie/goodie IC202 with a blown
> final. I think the radio will still put out 100mw so I plan to undo the
> radio's pin diode switch and replace with a dedicated relay on the output
> and have a break out line to split the RX/TX if needed.
>
> Anyway, not this summer but for next year I plan to get into a DFS 96MHz
> source for my mmwave stuff. Right now, the main goal is to make sure things
> are functioning for
> June and do some rebuild work for the 10G cummulative.
>
> Glad to see all the building/tech talk on the reflector - thats what
> microwave exprimenting is all about
>
> 73 de Mike
>
>
> --- On *Mon, 5/31/10, Zack Widup <w9sz.zack@...>* wrote:
>
>
> From: Zack Widup <w9sz.zack@gmail.com>
> Subject: Re: [w1ghz-transverter-builders] Re: Simple sequencing?
> To: w1ghz-transverter-builders@yahoogroups.com
> Date: Monday, May 31, 2010, 9:59 AM
>
>

>
> The switching for all my transverters 50 through 10368 MHz is initiated
> by a line from the IF rig. I use two Realistic HTX-100's. One is an
> unmodified rig, with the output set at about 3 watts in the "low" position.
> This is fed into W1VT's microwave transverter IF switch design, which brings
> the transmit RF down to the milliwatt level, and which there is one of in
> each transverter from 50 to 432. The other HTX-100 has had its amp
> heatsink/module removed and a 144 MHz transverter built into the radio. I
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> front of the radio before speaking into the mic or touching the key gives
> everything else enough time to switch with no problems. At least it hasn't
> been a problem at the 10 watt level. I've been using these transverters for
> 10 years now and have never had a problem with this switching arrangement.
> When running higher power, I'd probably be more concerned with sequencing.
>
> I would put more effort into having a stable LO than anything else. I used
> all my transverters with free-running LO's for several years. I mostly use
> them portable outside. Not only do they run at a different frequency as the
> temperature outside changes, but they drift quite a bit as the internal
> parts change temperatures. A change of 10 Hz at the base oscillator
> frequency will cause a kHz change at 10 GHz. My unstable LO for 10 GHz
> drifted as much as 3 kHz when trying to make QSO's.
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> It may be fine when you start out to have to tune around a lot to find the
> other station and to chase someone up and down the band as you try to work
> them, but you will get tired of it after a while. All my transverters now
> use a phase-locked VCXO which is locked to a 10 MHz OCXO. They are quite
> accurate and stable. Phase noise is also quite good with then OCXO's I'm
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> case, say you need 96 MHz for a 1296 MHz LO. You'd multiply 10 MHz by 10 to
> get 100 MHz, divide 10 MHz by 5 to get 2 MHz and then multuply that by 2 to
> get 4 MHz, then mix that with the 100 MHz and filter the output so you only
> get the 96 MHz product. DFS is much stabler and accurate and less phase
> noise than the VCXO-PLL aproach but is more complicated and has its own
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> bands. WA1ZMS has written up quite a bit on his LO schemes for his mm-wave
> radios.
>
> 73, Zack W9SZ
>
>
> On Mon, May 31, 2010 at 9:23 AM, thepalmhq <thepalmhq@gmail.
com<http://us.mc1800.mail.yahoo.com/mc/compose?to=thepalmhq@...>
> > wrote:
>

>>
>> This is all excellent information. Unfortunately, I think it scuttles me
>> to have 902 or 1296 in place for the June contest. I got the W6PQL sequencer
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>> IC-260A, so I'd have to do the PTT modification that Scott mentions below.
>> Given what I have left to do just to be ready to rove on 50/144/222/432,
>> things are shaping up to be a bit too much for 902/1296 in June. Ah well.
>> Still, as I said, this is great information and I'll have a good shot to
>> have it up and going for August, at least.
>>
>> 73,
>>
>> David W9HQ
>>
>>
>> --- In w1ghz-transverter- builders@ yahoogroups. com<http://us.mc1800.mail.yahoo.com/mc
/compose?to=w1ghz-transverter-builders%40yahoogroups.com>,
>> Scott <acepilot@...> wrote:
>>
>> As Mike notes, THAT is the key! The I.F rig should be the last item to
>> come on during TX and the first thing to go off when going back to RX.
>>
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>> (at least in my opinion) is to start at the antenna and work backwards. So
>> in my case (no pre-amp, with external PA), when switching to TX, the T/R
>> relay switches first (I use split RF on my transverters) , then the external
>> PA PTT line is activated, then the transverter PTT line is activated and
>> finally, the PTT line that actually keys the IF rig is activated. The IF rig
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>> My 857 has this pin and also PTT is available at the CAT/Linear jack on the
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>> (last event) and PTT goes to start the sequencer. This is all assuming that
>> your particular radio uses a positive voltage (say between 1 and 12V) to
>> inhibit the transmitter and that your sequencer provides "ground" signals
>> for each event in the sequence.
>>
>> Scott
>> N0EDV
>>
>>
>
>

64. 902 Amp from a 1996 Nokia

Yahoo group: w1ghz-transverter-builders
Date: 2010-06-01 14:51:07 UTC
From: Joshua M. Arritt
Topic: 64 Message: 64

Folks,

Over the weekend, I managed to make an old cell phone PA sing with my 902 xverter. The phone was an old Nokia "bag phone" that had a 1996 date stamp on the board. Can't recall the model no.

This particular phone had the Hitachi PF0030 amplifier brick in it. Here's the datasheet:

http://www.qsl.net/n9zia/cell2900/pf0030.pdf

.... which claims its top range to stop at 850MHz.

Giving this amp the following:

Drive - 12mW
V(DD) - 13.8V
V(APC) - 3.0V

I get just shy of 2 watts output, with some -28dBc spurs about 40MHz on either side of the carrier. A two-pole interdigital filter that I pulled and retuned from a surplus 30W ITS solid-state UHF television amplifier was then placed on the output, which quieted things down to acceptable spectral purity. This filter was slated to go between the antenna and the xvrtr to help RX selectivity as well. The loss through the filter was measured around -2.3dB.

I had first attempted to make my own "pallet" for the amp using some FR-4 clad on both sides. However, I can only figure my homebrew via technique was inadequate, as I could never get the amp to calm down with random oscillations and massive spurs -- making the spectrum analyzer look like a broom sage field. Thus, I re-installed the brick on the original Nokia board, harvested what parts looked nice off the thing, and proceeded to cut the excess off with a pair of tin snips. A few defunct SMD components, some cut in half, remain on the "amp" board, lending a nice trashy look to the inside of the rig.

This is presently being packaged in an old Alpine automotive subwoofer amp chassis -- somewhat large and heavy. I found with the 1296 rig that lightweight transverters are nice for backpacking, but have a hard time holding still against stiff coax. Thus, we've added some more weight on the 33cm rig. Pics and more to follow.

73,
- Josh / KF4YLM

65. Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-06-02 14:11:28 UTC
From: thepalmhq
Topic: 45 Message: 65

This discussion still leaves me with two questions.

First, we're talking a lot about the PTT line, but what about CW? How do you handle that? I can think of a few ways, but wondering if anybody has done this. I'd hate to be without CW, since every contest there are QSOs that are a no-go on SSB but very do-able on CW. It would seem to be similar to, but different from PTT and so has to be handled differently.

Second, given what you're all describing, it would seem that I could just build a little box with an attenuator, T/R relay so that the attenuator is only in the transmit path, and a sequencer board. So into the box goes the rig's microphone, RF output, and power. Out from the box comes the mike connection (which is just passed straight through), the attenuated RF, and the "event" outputs from the sequencer. (One of the events triggers the T/R relay in the box for the attenuator.) The PTT from the rig is shunted off to the sequencer, which eventually passes it on to the rig, but only after providing a few other events ahead of it.

I'm sure I'm just reinventing the wheel here, but that sort of an interface seems like what I need and should keep the transverter fairly safe. Yes? No?

Thanks and 73,

David W9HQ

66. Re: [w1ghz-transverter-builders] Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-06-02 14:48:14 UTC
From: Zack Widup
Topic: 45 Message: 66

Not with my IF rigs. I follow the same procedures on SSB or on CW with the HTX-100's on the microwave bands. I throw the T-R switch on the front of the radio about a half second before I start speaking or touching the key(er). Then to listen I throw the switch back the other way.

Of course, if your radio doesn't have such a switch, you have more of a problem. My FT290RII doesn't. That's why I take it along only as a standby IF radio, in case the other one fails. You COULD build an external circuit to do this though. You'd just have to figure out where to put the switch for easy access.

I also have a KK7B R2-T2 transceiver built as a D-C 144 MHz IF radio. I'm not entirely satisfied with the tuning (a "rubberized" crystal oscillator) and there are a few other bugs in it. But if you build something like that from scratch, you're free to build in whatever features you want. Mine has offset tuning on CW so a 700 Hz note on receive on CW produces zero-beat on transmit.

73, Zack W9SZ

On Wed, Jun 2, 2010 at 9:11 AM, thepalmhq <thepalmhq@...> wrote:

> This discussion still leaves me with two questions.
>
> First, we're talking a lot about the PTT line, but what about CW? How do
> you handle that? I can think of a few ways, but wondering if anybody has
> done this. I'd hate to be without CW, since every contest there are QSOs
> that are a no-go on SSB but very do-able on CW. It would seem to be similar
> to, but different from PTT and so has to be handled differently.
>

67. Re: [w1ghz-transverter-builders] Re: Simple sequencing?

Yahoo group: w1ghz-transverter-builders
Date: 2010-06-02 21:29:14 UTC
From: aa9il@sbcglobal.net
Topic: 45 Message: 67

Howdy
In the scheme where I use the DEMI sequencer, each sequence has a relay that can provide voltage or close a contact (or open) - its DPDT, so one leg closes the PTT line, the other closes the cw key line. I want to mention that I put two 1/8 jacks on the front of the transverter and a Mic IN/Mic Out - the MIC out and key out go to the radio, I plug a microphone in at the transverter and the key. I flip a front panel switch to start sequence. When I get a Red LED, the sequencer is complete and the PTT/CW lines are complete to allow me to key the radio.
73 de Mike

First, we're talking a lot about the PTT line, but what about CW? How do you handle that? I can think of a few ways, but wondering if anybody has done this. I'd hate to be without CW, since every contest there are QSOs that are a no-go on SSB but very do-able on CW. It would seem to be similar to, but different from PTT and so has to be handled differently.

68. Starting on the 2304 xvrtr

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 16:18:11 UTC
From: Joshua M. Arritt
Topic: 68 Message: 68

After scrounging for 1" pipe caps at 5 different Lowe's stores, and 2 Home Despots, I've finally collected up enough of the caps to start putting together the 2304 and 3456 transverter kits. I was very surprised at how quickly Cu is going out of style for new home construction, and was pretty regularly informed by some "knowledgeable" clerks about how I should be using CPVC.

Didn't bother trying to explain to those folks why these had to be metal.......

So last night, I drilled and tapped the holes for the 10-32 screws.

Has anyone else on list put one of these together yet? Any stories, tricks, etc? With the lack of a heat gun on my bench, I'm considering using a torch to heat the caps to soldering temp. Another variation from Paul's article, I'm using slightly larger .031 Kester to make the "rings".

How about external PAs? Scored a lot of Farinon 2GHz amps from eBay a while back that look to be pulled from some television remote pick-up transmitters, and possibly are capable of as much as 5 watts or more judging from the heat sinks. Haven't been able to pull any datasheets based on the extensive model/part number.

My hope is to have this up and running for the UHF 'test in August.

- J

69. Re: [w1ghz-transverter-builders] Starting on the 2304 xvrtr

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 16:34:49 UTC
From: Zack Widup
Topic: 68 Message: 69

Hi Josh,

I haven't built those particular units but I've built a lot of gear with pipe cap filters. A few things -

1) Tinning the board first in the area where the edge of the filter will make contact with the board really helps. Then draw a circle or preferably a square around the area where the pipe cap will sit.

2) Apply a tiny amount of soldering flux (non-acid) to the edge of the pipe cap first.

3) Make sure you DO NOT have the screw in the tuning hole of the filter when you solder it! Otherwise a lot of pressure is going to build up inside when you heat it and a lot of undesirable things will happen.

4) It helps to hold the pipe cap down on the board with slight pressure from a C-clamp or something that will allow you to heat the side of the pipe cap. Make sure it's aligned with the circle or square you drew.

5) Use a blowtorch to heat the pipe cap while applying solder to the base of the pipe cap. If you're using a ring of solder, make sure it fits as tightly as you can get it around the base of the pipe cap. I heat it by rapidly moving the torch's flame against and away from the pipe cap over and over. Use only enough heat to get the pipe cap hot enough so the solder flows into the contact edge.

73, Zack W9SZ

On Tue, Jul 6, 2010 at 11:18 AM, Joshua M. Arritt <jarritt@...> wrote:

>
>
> After scrounging for 1" pipe caps at 5 different Lowe's stores, and 2
> Home Despots, I've finally collected up enough of the caps to start
> putting together the 2304 and 3456 transverter kits. I was very
> surprised at how quickly Cu is going out of style for new home
> construction, and was pretty regularly informed by some "knowledgeable"
> clerks about how I should be using CPVC.
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> Didn't bother trying to explain to those folks why these had to be
> metal.......
>
> So last night, I drilled and tapped the holes for the 10-32 screws.
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> Has anyone else on list put one of these together yet? Any stories,
> tricks, etc? With the lack of a heat gun on my bench, I'm considering

> using a torch to heat the caps to soldering temp. Another variation
> from Paul's article, I'm using slightly larger .031 Kester to make the
> "rings".
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> How about external PAs? Scored a lot of Farinon 2GHz amps from eBay a
> while back that look to be pulled from some television remote pick-up
> transmitters, and possibly are capable of as much as 5 watts or more
> judging from the heat sinks. Haven't been able to pull any datasheets
> based on the extensive model/part number.
>
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>
> - J
>
>
>

70. Re: [w1ghz-transverter-builders] Starting on the 2304 xvrtr

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 16:37:16 UTC
From: gary rheuark
Topic: 68 Message: 70

What I have done in the past is to tin the PCB and then place the PCB on my electric stove top. Then I put the copper pipe cap on the PCB and then put a ring of solder around the pipe cap. The electric stove top puts in just enough heat to do the job.....Gary

---

From: Joshua M. Arritt <jarritt@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Tue, July 6, 2010 11:18:11 AM
Subject: [w1ghz-transverter-builders] Starting on the 2304 xvrtr

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- J

71. Re: Starting on the 2304 xvrtr

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 19:29:43 UTC
From: thepalmhq
Topic: 68 Message: 71

Here's one more piece of information on this topic that I got from W1GHZ. In answer to my question of whether it is okay and perhaps desirable to solder a brass nut on top of the pipe cap, to make a more stable and robust mount for the tuning bolt, he wrote:

"Yes. When I am planning to do much tuning, particularly during development of something new, I use a brass nut. Usually I tap the pipe cap, then hold the nut in place with a stainless-steel screw while I solder it, so that the nut is aligned straight. But you could do it by eye."

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, gary rheuark <garyk5qnm@...> wrote:
>
> What I have done in the past is to tin the PCB and then place the PCB on my
> electric stove top. Then I put the copper pipe cap on the PCB and then put a
> ring of solder around the pipe cap. The electric stove top puts in just enough
> heat to do the job.....Gary

72. Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 19:50:23 UTC
From: thepalmhq
Topic: 72 Message: 72

I have just posted a photo of my proposed 902 transverter layout in the appropriate photo section. I would value any feedback on what might not be correct or could be improved. I haven't finalized this yet with soldered-in IF and LO lines, so some rearrangement is still pretty convenient.

The little relay board on the left has +8 and +5 VDC voltage regulators, so I have continuous +8 for the LO board, switched +8 receive and transmit for the transverter board, +5 on transmit only for the little first-stage PA board, and +12 on transmit only for the final PA section. Ferrite beads on all the DC lines.

The first-stage PA board to the left of the transverter board is for an RF2126, which I hope will give me about 300 mW out. That will drive a Motorola MHW820-3 for around 15 watts. I have an SMA on the RF2126 output so that I can select just the 300 mW for "barefoot" operation to drive an outboard Motorola SGTF1040A cell amp, or jumper that output over to the MHW820-3 so that the standalone transverter puts out the 15 watts. The MHW820 will be mounted on a heatsink on the top cover. That's the plan, anyway.

If you think it looks okay or if you see any problems, I'd value the feedback. I'll probably be checking out the RF2126 PA section later this week.

Thanks and 73,

David W9HQ

73. RE: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 19:55:41 UTC
From: tony dinkel
Topic: 72 Message: 73

Where do you get MHW-820-3's lately? Last time I tried to order a bunch Motorola told me they were NLA?
tdwb6mie
To: w1ghz-transverter-builders@yahoogroups.com
From: thepalmhq@...
Date: Tue, 6 Jul 2010 19:50:23 +0000
Subject: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

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David W9HQ

_____
Hotmail is redefining busy with tools for the New Busy. Get more from your inbox.
http://www.windowslive.com/campaign/thenewbusy?ocid=PID28326::T:WLMTAGL:ON:WL:en-US:WM_HMP:042010_2

74. Re: Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 20:02:33 UTC
From: thepalmhq
Topic: 72 Message: 74

>> Where do you get MHW-820-3's lately? Last time I tried to order a bunch Motorola told me they were NLA? <<

I got a couple off of EBay, from this fellow:

http://myworld.ebay.com/bob654321/

He currently only has MHW820-1 parts, though, and not very many of those left.

75. Re: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 20:29:26 UTC
From: gary rheuark
Topic: 72 Message: 75

David, do pass along your results with the RF2126s. I have 5 NOS down here just waiting for motivation.....Gary.....K5QNM

From: thepalmhq <thepalmhq@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Tue, July 6, 2010 2:50:23 PM
Subject: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

I have just posted a photo of my proposed 902 transverter layout in the appropriate photo section. I would value any feedback on what might not be correct or could be improved. I haven't finalized this yet with soldered-in IF and LO lines, so some rearrangement is still pretty convenient.

The little relay board on the left has +8 and +5 VDC voltage regulators, so I have continuous +8 for the LO board, switched +8 receive and transmit for the transverter board, +5 on transmit only for the little first-stage PA board, and +12 on transmit only for the final PA section. Ferrite beads on all the DC lines.

The first-stage PA board to the left of the transverter board is for an RF2126, which I hope will give me about 300 mW out. That will drive a Motorola MHW820-3 for around 15 watts. I have an SMA on the RF2126 output so that I can select just the 300 mW for "barefoot" operation to drive an outboard Motorola SGTF1040A cell amp, or jumper that output over to the MHW820-3 so that the standalone transverter puts out the 15 watts. The MHW820 will be mounted on a heatsink on the top cover. That's the plan, anyway.

If you think it looks okay or if you see any problems, I'd value the feedback. I'll probably be checking out the RF2126 PA section later this week.

Thanks and 73,

David W9HQ

76. Re: [w1ghz-transverter-builders] Re: Starting on the 2304 xvrtr

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 21:45:37 UTC
From: Scott
Topic: 68 Message: 76
Attachments: 1 described; binary payloads are missing from this source WARC

I do something similar, except I drill a larger hole in the pipe cap so that the screw does NOT thread into the cap...then I solder a brass nut over that hole and the screw only threads into the nut and passes through the hole. Just be careful not to use too much solder or it will wick up into the threads and then you're hosed...then you have to put on a new nut. Then I use a small spring between the nut and the screw head to push the screw head up so that its threads are under pressure and make good contact with the nut.

N0EDV

thepalmhq wrote:

Here's one more piece of information on this topic that I got from W1GHZ. In answer to my question of whether it is okay and perhaps desirable to solder a brass nut on top of the pipe cap, to make a more stable and robust mount for the tuning bolt, he wrote:

"Yes. When I am planning to do much tuning, particularly during development of something new, I use a brass nut. Usually I tap the pipe cap, then hold the nut in place with a stainless-steel screw while I solder it, so that the nut is aligned straight. But you could do it by eye."

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, gary rheuark wrote:
>
> What I have done in the past is to tin the PCB and then place the PCB on my
> electric stove top. Then I put the copper pipe cap on the PCB and then put a
> ring of solder around the pipe cap. The electric stove top puts in just enough
> heat to do the job.....Gary

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

77. Re: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 21:49:59 UTC
From: Zack Widup
Topic: 72 Message: 77

The layout looks good. I'm curious about the RF2126, though. Its specs indicate a bandwidth from 1800 to 2500 MHz. It is a fine device at 2304 (I've used it there) but you probably aren't going to get a watt out of it at 903 or 1296.

I wish I could remember where I got the M67773 modules I have a couple of. They take 1 milliwatt in and give 10 watts out. I'll see if I can track down where I got them and if the guy still has any.

73, Zack W9SZ

On Tue, Jul 6, 2010 at 2:50 PM, thepalmhq <thepalmhq@...> wrote:

>
>
> I have just posted a photo of my proposed 902 transverter layout in the
> appropriate photo section. I would value any feedback on what might not be
> correct or could be improved. I haven't finalized this yet with soldered-in
> IF and LO lines, so some rearrangement is still pretty convenient.
>
> The little relay board on the left has +8 and +5 VDC voltage regulators, so
> I have continuous +8 for the LO board, switched +8 receive and transmit for
> the transverter board, +5 on transmit only for the little first-stage PA
> board, and +12 on transmit only for the final PA section. Ferrite beads on
> all the DC lines.
>
> The first-stage PA board to the left of the transverter board is for an
> RF2126, which I hope will give me about 300 mW out. That will drive a
> Motorola MHW820-3 for around 15 watts. I have an SMA on the RF2126 output so
> that I can select just the 300 mW for "barefoot" operation to drive an
> outboard Motorola SGTF1040A cell amp, or jumper that output over to the
> MHW820-3 so that the standalone transverter puts out the 15 watts. The
> MHW820 will be mounted on a heatsink on the top cover. That's the plan,
> anyway.
>
> If you think it looks okay or if you see any problems, I'd value the
> feedback. I'll probably be checking out the RF2126 PA section later this
> week.
>
> Thanks and 73,
>
> David W9HQ
>
>
>

78. Re: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-06 22:39:41 UTC
From: Scott
Topic: 72 Message: 78

Or, if you have 10 uW of drive power at 902 (-20 dBm), the RA13H8891MB
will give about 10W out. And brand new, it's about $29 from RF Parts.
No matching required either (BIG plus for brick amps!).
http://www.rfparts.com/pdf_docs/RA/ra13h8891mb.pdf

N0EDV

Zack Widup wrote:
>
> The layout looks good. I'm curious about the RF2126, though. Its specs
> indicate a bandwidth from 1800 to 2500 MHz. It is a fine device at
> 2304 (I've used it there) but you probably aren't going to get a watt
> out of it at 903 or 1296.
>
> I wish I could remember where I got the M67773 modules I have a couple
> of. They take 1 milliwatt in and give 10 watts out. I'll see if I can
> track down where I got them and if the guy still has any.
>
> 73, Zack W9SZ
>
> On Tue, Jul 6, 2010 at 2:50 PM, thepalmhq <thepalmhq@...
> <mailto:thepalmhq@...>> wrote:
>
>
>
>
> I have just posted a photo of my proposed 902 transverter layout
> in the appropriate photo section. I would value any feedback on
> what might not be correct or could be improved. I haven't
> finalized this yet with soldered-in IF and LO lines, so some
> rearrangement is still pretty convenient.
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> The little relay board on the left has +8 and +5 VDC voltage
> regulators, so I have continuous +8 for the LO board, switched +8
> receive and transmit for the transverter board, +5 on transmit
> only for the little first-stage PA board, and +12 on transmit only
> for the final PA section. Ferrite beads on all the DC lines.
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> for an RF2126, which I hope will give me about 300 mW out. That
> will drive a Motorola MHW820-3 for around 15 watts. I have an SMA
> on the RF2126 output so that I can select just the 300 mW for
> "barefoot" operation to drive an outboard Motorola SGTF1040A cell
> amp, or jumper that output over to the MHW820-3 so that the
> standalone transverter puts out the 15 watts. The MHW820 will be
> mounted on a heatsink on the top cover. That's the plan, anyway.

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> If you think it looks okay or if you see any problems, I'd value
> the feedback. I'll probably be checking out the RF2126 PA section
> later this week.
>
> Thanks and 73,
>
> David W9HQ
>
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

79. Re: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-07 02:24:08 UTC
From: gary rheuark
Topic: 72 Message: 79

My spec sheets show 400 mhz up to some 2700 mhz.....Gary.....K5QNM

From: Zack Widup <w9sz.zack@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Tue, July 6, 2010 4:49:59 PM
Subject: Re: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

The layout looks good. I'm curious about the RF2126, though. Its specs indicate a bandwidth from 1800 to 2500 MHz. It is a fine device at 2304 (I've used it there) but you probably aren't going to get a watt out of it at 903 or 1296.

I wish I could remember where I got the M67773 modules I have a couple of. They take 1 milliwatt in and give 10 watts out. I'll see if I can track down where I got them and if the guy still has any.

73, Zack W9SZ

On Tue, Jul 6, 2010 at 2:50 PM, thepalmhq <thepalmhq@gmail. com> wrote:

>I have just posted a photo of my proposed 902 transverter layout in the
>appropriate photo section. I would value any feedback on what might not be
>correct or could be improved. I haven't finalized this yet with soldered-in IF
>and LO lines, so some rearrangement is still pretty convenient.
>
>The little relay board on the left has +8 and +5 VDC voltage regulators, so I
>have continuous +8 for the LO board, switched +8 receive and transmit for the
>transverter board, +5 on transmit only for the little first-stage PA board, and
>+12 on transmit only for the final PA section. Ferrite beads on all the DC
>lines.
>
>The first-stage PA board to the left of the transverter board is for an RF2126,
>which I hope will give me about 300 mW out. That will drive a Motorola MHW820-3
>for around 15 watts. I have an SMA on the RF2126 output so that I can select
>just the 300 mW for "barefoot" operation to drive an outboard Motorola SGTF1040A
>cell amp, or jumper that output over to the MHW820-3 so that the standalone
>transverter puts out the 15 watts. The MHW820 will be mounted on a heatsink on
>the top cover. That's the plan, anyway.
>
>If you think it looks okay or if you see any problems, I'd value the feedback.
>I'll probably be checking out the RF2126 PA section later this week.
>
>Thanks and 73,
>
>David W9HQ
>

>

My spec sheets sow a bandwidth of 400

80. Re: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-07 02:48:11 UTC
From: Zack Widup
Topic: 72 Message: 80

Hmm ... it appears I have TWO data sheets for the RF2126. One is an older
sheet (Rev A10) and indicates a useful range of 1800 to 2500 MHz. The other
data sheet is newer (Rev A14) and indicates 400 to 2700 MHz.
So which is it? I guess only experimentation will tell.

73, Zack W9SZ

On Tue, Jul 6, 2010 at 9:24 PM, gary rheuark <garyk5qnm@...> wrote:

>
>
> My spec sheets show 400 mhz up to some 2700 mhz.....Gary.....K5QNM
>
> ------------------------------
> *From:* Zack Widup <w9sz.zack@...>
>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> *Sent:* Tue, July 6, 2010 4:49:59 PM
> *Subject:* Re: [w1ghz-transverter-builders] Comments on my 902 transverter
> layout?
>
>
>
> The layout looks good. I'm curious about the RF2126, though. Its specs
> indicate a bandwidth from 1800 to 2500 MHz. It is a fine device at 2304
> (I've used it there) but you probably aren't going to get a watt out of it
> at 903 or 1296.
>
> I wish I could remember where I got the M67773 modules I have a couple of.
> They take 1 milliwatt in and give 10 watts out. I'll see if I can track down
> where I got them and if the guy still has any.
>
> 73, Zack W9SZ
>
> On Tue, Jul 6, 2010 at 2:50 PM, thepalmhq <thepalmhq@gmail. com<thepalmhq@...>
> > wrote:
>
>>
>>
>> I have just posted a photo of my proposed 902 transverter layout in the
>> appropriate photo section. I would value any feedback on what might not be
>> correct or could be improved. I haven't finalized this yet with soldered-in
>> IF and LO lines, so some rearrangement is still pretty convenient.
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>> The little relay board on the left has +8 and +5 VDC voltage regulators,
>> so I have continuous +8 for the LO board, switched +8 receive and transmit

>> for the transverter board, +5 on transmit only for the little first-stage PA
>> board, and +12 on transmit only for the final PA section. Ferrite beads on
>> all the DC lines.
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>> outboard Motorola SGTF1040A cell amp, or jumper that output over to the
>> MHW820-3 so that the standalone transverter puts out the 15 watts. The
>> MHW820 will be mounted on a heatsink on the top cover. That's the plan,
>> anyway.
>>
>> If you think it looks okay or if you see any problems, I'd value the
>> feedback. I'll probably be checking out the RF2126 PA section later this
>> week.
>>
>> Thanks and 73,
>>
>> David W9HQ
>>
>>
> My spec sheets sow a bandwidth of 400
>
>
>

81. Re: Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-07 12:29:19 UTC
From: thepalmhq
Topic: 72 Message: 81

Okay, it's good to know that I'm not crazy. I was pretty sure I had seen this part spec'ed down to 400 MHz. I will indeed report back on how it works at 900 MHz. Shouldn't be long now.......

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> Hmm ... it appears I have TWO data sheets for the RF2126. One is an older
> sheet (Rev A10) and indicates a useful range of 1800 to 2500 MHz. The other
> data sheet is newer (Rev A14) and indicates 400 to 2700 MHz.
> So which is it? I guess only experimentation will tell.
>
> 73, Zack W9SZ

82. Re: [w1ghz-transverter-builders] Comments on my 902 transverter layout?

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-07 14:02:14 UTC
From: Zack Widup
Topic: 72 Message: 82

BTW I had a discussion with WA2AAU at Dayton after his presentation about modifying the 1.9 GHz PCS amps to 2.3 GHz and running them on 12 volts.

The PCS amps the MGEF group were selling at Dayton (which I bought one of several years ago) use an RF2125. It is spec'd to 2200 MHz. It is the same device as the 2126 with a slightly lower frequency range. It has a pad on the bottom that must be grounded and is very difficult to remove. I asked if it would be worth it to replace it with the 2126. Dick didn't think so. He thought the gain of the 2125 is probably only slightly less at 2304.

Maybe one of these days I'll actually get around to modifyiong my PCS amp. It's supposed to be good for 60+ watts on 12 volts using Dick's mod. I'd have to make a new dish feed, though; my WA3RMX triband feed can't stand more than 20 watts.

73, Zack W9SZ

On 7/6/10, gary rheuark <garyk5qnm@...> wrote:
>
>
>
> David, do pass along your results with the RF2126s. I have 5 NOS down here
> just waiting for motivation.....Gary.....K5QNM
>
> ------------------------------
> *From:* thepalmhq <thepalmhq@...>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> *Sent:* Tue, July 6, 2010 2:50:23 PM
> *Subject:* [w1ghz-transverter-builders] Comments on my 902 transverter
> layout?
>
>
>
> I have just posted a photo of my proposed 902 transverter layout in the
> appropriate photo section. I would value any feedback on what might not be
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>
> The first-stage PA board to the left of the transverter board is for an
> RF2126, which I hope will give me about 300 mW out. That will drive a

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> that I can select just the 300 mW for "barefoot" operation to drive an
> outboard Motorola SGTF1040A cell amp, or jumper that output over to the
> MHW820-3 so that the standalone transverter puts out the 15 watts. The
> MHW820 will be mounted on a heatsink on the top cover. That's the plan,
> anyway.
>
> If you think it looks okay or if you see any problems, I'd value the
> feedback. I'll probably be checking out the RF2126 PA section later this
> week.
>
> Thanks and 73,
>
> David W9HQ
>
>
>
>

83. Re: 900 MHz amplifier modules on EBay

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-11 14:08:53 UTC
From: thepalmhq
Topic: 39 Message: 83

To follow up on this with more information:

There are several vendors on EBay that have the SHW5151 module for 700 - 900 MHz. The cheapest one is the link I posted (and yes, they will take less than the asking price), but there are several others.

There is a guy who has a PCB developed for this module:

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=150207126606&ssPageName=STRK:MEWAX:IT

Happily, he also has a schematic and a bunch of detailed performance specs for a (very expensive!) product he sells that uses this module:

http://www.rfbayinc.com/SCH/AMP5151SCH.pdf

http://www.rfbayinc.com/MPA/MPA-0915.pdf

So this looks like a pretty cheap way to get 5-10 watts on 900 MHz, starting from drive levels well below those produced by the W1GHZ transverters.

84. Common LO for W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-27 17:59:35 UTC
From: thepalmhq
Topic: 84 Message: 84

I thought that W1GHZ's original idea of having a common 720 MHz LO to drive multiple transverters for different bands was great. Unfortunately, the family has started to diverge a bit from that original goal. The 1296 transverter using the 720 MHz LO tuned "upside down" and apparently Paul wasn't selling any of them--all seem to prefer the "right-side up" version with 1152 MHz LO. And of course, the 902 MHz transverter takes yet another LO at 756 MHz.

But I was wondering.....what if several LO boards were driven from a single 14.4 MHz TCXO source, like the ones that pyrojoseph sells on EBay? If the combline filters on the LO boards can be retuned simply by stuffing different capacitors--and the documentation indicates that they can--then it would seem that the existing LO boards might be used with this common oscillator.

How about retuning the first filter to 288 MHz and then x4 to 1152? You've got your LO for the 1296-RSU transverter.

Then perhaps retune another board to do 144 MHz for the first step and then x5 to 720--although perhaps having the intermediate stage at 144 is a problem? This would get you the LO for 2304 and 3456 (and eventually 10 GHz, if that member of the family is born.)

I suppose even tuning the filter to 187.2 and then x4 to 748.8 MHz, for use with the 902 MHz board would be possible. That would result in a strange IF for 902 MHz, obviously. Still, if a guy wanted to have one well-behaved oscillator for all the bands, he might be willing to put up with that.....

I wonder if you think this would work. Also, how might one be able to calculate the needed capacitor values to retune the combline filter to 144, 187.2, and 288 MHz? Could contact W1GHZ about this, but thought I'd run it by the group first.

Also, those of you who have more knowledge about other common LOs (i.e. a disciplined LO for 10 MHz), please chime in with your experience, knowledge, and sources. Educate us!

73,

David W9HQ

85. Re: [w1ghz-transverter-builders] Common LO for W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-27 21:33:29 UTC
From: aa9il@sbcglobal.net
Topic: 84 Message: 85

Hi all
Im a dedicated LO per xverter kind of guy. I recall seeing different multiband schemes but my personal preference is the simplicity of complete xverters as stand alone - if for anything that the single LO could also be a single point of failure. Plus for me, this works out as I have surplus LO's for different bands 902, 1.2, 2304 so really only need the actual xverter boards themselves.
73 de Mike
AA9IL

--- On Tue, 7/27/10, thepalmhq <thepalmhq@...> wrote:

From: thepalmhq <thepalmhq@gmail.com>
Subject: [w1ghz-transverter-builders] Common LO for W1GHZ transverters
To: w1ghz-transverter-builders@yahoogroups.com
Date: Tuesday, July 27, 2010, 12:59 PM

I thought that W1GHZ's original idea of having a common 720 MHz LO to drive multiple transverters for different bands was great. Unfortunately, the family has started to diverge a bit from that original goal. The 1296 transverter using the 720 MHz LO tuned "upside down" and apparently Paul wasn't selling any of them--all seem to prefer the "right-side up" version with 1152 MHz LO. And of course, the 902 MHz transverter takes yet another LO at 756 MHz.

But I was wondering.......what if several LO boards were driven from a single 14.4 MHz TCXO source, like the ones that pyrojoseph sells on EBay? If the combline filters on the LO boards can be retuned simply by stuffing different capacitors--and the documentation indicates that they can--then it would seem that the existing LO boards might be used with this common oscillator.

How about retuning the first filter to 288 MHz and then x4 to 1152? You've got your LO for the 1296-RSU transverter.

Then perhaps retune another board to do 144 MHz for the first step and then x5 to 720--although perhaps having the intermediate stage at 144 is a problem? This would get you the LO for 2304 and 3456 (and eventually 10 GHz, if that member of the family is born.)

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Also, those of you who have more knowledge about other common LOs (i.e. a disciplined LO for 10 MHz), please chime in with your experience, knowledge, and sources. Educate us!

73,

David W9HQ

86. Tweaking 2304 pipecap filters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-28 01:03:13 UTC
From: Kirk
Topic: 86 Message: 86

I just finished my 2304 converter and followed the instructions to tune the pipe filters during each step, peaking the measured levels. I decided to go back and tweak each of the filters on TX (0db IF) to maximum output. To my surprise the output level came up several DB. I am now wondering if I screwed up the RX tune and should go back and retune each section. I don't have a good way to test RX to validate. Thoughts?

Kirk

87. Re: [w1ghz-transverter-builders] Tweaking 2304 pipecap filters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-28 01:32:22 UTC
From: Scott
Topic: 86 Message: 87

The only pipe cap in the RF section that is common to TX and RX is the one connected to the RF port of the mixer. If you peak this one for max TX output power, it should be good on the RX signal as well. The pipe cap between A2 and A3 is strictly for TX. Peaking the two pipe caps in the LO chain (between A4 and A5 and the one connected to the LO port of the mixer) will affect both TX power and RX sensitivity and should be peaked. Hopefully you have some sort of power indicator that is sensitive enough to hook up to the LO test point during tuning, or else the only way I think you could do it is to peak them to maximum TX power.

Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

Kirk wrote:
>
> I just finished my 2304 converter and followed the instructions to
> tune the pipe filters during each step, peaking the measured levels. I
> decided to go back and tweak each of the filters on TX (0db IF) to
> maximum output. To my surprise the output level came up several DB. I
> am now wondering if I screwed up the RX tune and should go back and
> retune each section. I don't have a good way to test RX to validate.
> Thoughts?
>
> Kirk
>
>

--

88. Re: Tweaking 2304 pipecap filters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-28 02:00:51 UTC
From: Kirk
Topic: 86 Message: 88

Hi Scott,

Thanks for the info. That was what I thought but needed the head check.

I used a LTC5508 detector and w1ghz board to do the power measurements.

73,

Kirk

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> The only pipe cap in the RF section that is common to TX and RX is the
> one connected to the RF port of the mixer. If you peak this one for max
> TX output power, it should be good on the RX signal as well. The pipe
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> sensitive enough to hook up to the LO test point during tuning, or else
> the only way I think you could do it is to peak them to maximum TX power.
>
> Scott
> http://corbenflyer.tripod.com/
> Flying Corben Junior Ace - Building RV-4
> Gotta Fly or Gonna Die
>
>
>
>
> Kirk wrote:
> >
> > I just finished my 2304 converter and followed the instructions to
> > tune the pipe filters during each step, peaking the measured levels. I
> > decided to go back and tweak each of the filters on TX (0db IF) to
> > maximum output. To my surprise the output level came up several DB. I
> > am now wondering if I screwed up the RX tune and should go back and
> > retune each section. I don't have a good way to test RX to validate.
> > Thoughts?
> >
> > Kirk
> >
> >
>
> --
>

89. Re: [w1ghz-transverter-builders] Tweaking 2304 pipecap filters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-28 05:09:07 UTC
From: Zack Widup
Topic: 86 Message: 89

Best way to check/tweak the receive line is with a signal. Do you have a 2304 beacon nearby?

If not, you can get 1152 MHz from an A32 LO board and listen for the second harmonic. I have an oscillator that puts out 1152 MHz and I use it to align receive chains all the way up to 10368 MHz.

73, Zack W9SZ

On Tue, Jul 27, 2010 at 8:03 PM, Kirk <n4kwo@...> wrote:

>
>
> I just finished my 2304 converter and followed the instructions to tune the
> pipe filters during each step, peaking the measured levels. I decided to go
> back and tweak each of the filters on TX (0db IF) to maximum output. To my
> surprise the output level came up several DB. I am now wondering if I
> screwed up the RX tune and should go back and retune each section. I don't
> have a good way to test RX to validate. Thoughts?
>
> Kirk
>
>
>

90. Re: [w1ghz-transverter-builders] Re: Tweaking 2304 pipecap filters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-28 11:05:43 UTC
From: Scott
Topic: 86 Message: 90

Do you have any way to measure frequency at 2304 to make sure you are tuned to the correct mixer products? If not, if you followed Paul's tuneup proceedures, you should be OK. Good luck with the project!!

Scott
N0EDV

Kirk wrote:
>
>
> Hi Scott,
>
> Thanks for the info. That was what I thought but needed the head check.
>
> I used a LTC5508 detector and w1ghz board to do the power measurements.
>
> 73,
>
> Kirk
>

91. Re: [w1ghz-transverter-builders] Tweaking 2304 pipecap filters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-28 11:23:42 UTC
From: Scott
Topic: 86 Message: 91

That's how I do it as well. This method is simple and seems to work pretty well. I actually use the W1GHZ 1152 LO in my W1GHZ right side up transverter. On my transverter case, I bring out the LO signal (with about +5 dBm from the LO board (optional MMIC installed on LO board output)) and then inject this onto one of DEMI's generic MMIC boards (one designed for 2 MMICs). I use their N6 MMICs on the boards and break the trace between the MMICs and put an appropriate sized pipe cap for the desired band (same size as used on each W1GHZ transverter...1" for 2304 and 3456). You can see an example on the ham radio page of my website at http://corbenflyer.tripod.com/

N0EDV

Zack Widup wrote:
>
> Best way to check/tweak the receive line is with a signal. Do you have
> a 2304 beacon nearby?
>
> If not, you can get 1152 MHz from an A32 LO board and listen for the
> second harmonic. I have an oscillator that puts out 1152 MHz and I use
> it to align receive chains all the way up to 10368 MHz.
>
> 73, Zack W9SZ
>

92. Re: Tweaking 2304 pipecap filters

Yahoo group: w1ghz-transverter-builders
Date: 2010-07-29 01:16:48 UTC
From: Kirk
Topic: 86 Message: 92

Unfortunately no beacons near by to tune up. I do have a 1152 oscillator for the 1296 RSU I can use to test. I will give that a try.

Kirk
--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> Best way to check/tweak the receive line is with a signal. Do you have a
> 2304 beacon nearby?
>
> If not, you can get 1152 MHz from an A32 LO board and listen for the second
> harmonic. I have an oscillator that puts out 1152 MHz and I use it to align
> receive chains all the way up to 10368 MHz.
>
> 73, Zack W9SZ
>
> On Tue, Jul 27, 2010 at 8:03 PM, Kirk <n4kwo@...> wrote:
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> >
> >
> > I just finished my 2304 converter and followed the instructions to tune the
> > pipe filters during each step, peaking the measured levels. I decided to go
> > back and tweak each of the filters on TX (0db IF) to maximum output. To my
> > surprise the output level came up several DB. I am now wondering if I
> > screwed up the RX tune and should go back and retune each section. I don't
> > have a good way to test RX to validate. Thoughts?
> >
> > Kirk
> >
> >
> >
>

93. Re: Common LO for W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-06 13:44:15 UTC
From: thepalmhq
Topic: 84 Message: 93

Thanks for your perspective, Mike. Your concern about a single point failure is certainly reasonable.

I e-mailed W1GHZ with my questions above and here is his answer:

"Not a great idea for two reasons.

1. having an LO product and IF both at 144 pretty
much guarantees birdies

2. the filters aren't sharp enough - there will be
outputs every 14.4 MHz

I've considered starting with a 16 MHz VCXO, even built a
breadboard locked to GPS 10 MHz, then multiplying to 64 and
80 MHz in a well-shielded box. haven't followed through yet.

73
paul

So there's another interesting idea on using a common LO for all of these boards.

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, aa9il@... wrote:
>
>Hi all
>Im a dedicated LO per xverter kind of guy.
>I recall seeing different multiband schemes
>but my personal preference is the simplicity
>of complete xverters as stand alone - if for
>anything that the single LO could also be a
>single point of failure.Â Plus for me, this works
>out as I have surplus LO's for different bands 902,
>1.2, 2304 so really only need the actual xverter
>boards themselves.

>73 de Mike
>AA9IL

94. Re: [w1ghz-transverter-builders] Re: Common LO for W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-06 14:48:04 UTC
From: Scott
Topic: 84 Message: 94

On the positive side, having one LO would save enough cash to buy several more transverters. This is assuming that one buys a synthesized LO, such as the ApolLO boards from N5AC (available from DEMI as well). At $139 each, the savings is obvious. Going this route (multiple [synthesized] LOs), you could still have a single point failure with multiple LOs if the 10 MHz reference source fails. Most folks only use one of these (rubidium, GPSDO, etc.). I am experimenting with the older ApolLO I (user programmable via USB port). The beauty of these is that one can generate just about any LO frequency if one wants to try different IF schemes, etc.

N0EDV

thepalmhq wrote:
>
> Thanks for your perspective, Mike. Your concern about a single point
> failure is certainly reasonable.
>
> I e-mailed W1GHZ with my questions above and here is his answer:
>
> "Not a great idea for two reasons.
>
> 1. having an LO product and IF both at 144 pretty
> much guarantees birdies
>
> 2. the filters aren't sharp enough - there will be
> outputs every 14.4 MHz
>
> I've considered starting with a 16 MHz VCXO, even built a
> breadboard locked to GPS 10 MHz, then multiplying to 64 and
> 80 MHz in a well-shielded box. haven't followed through yet.
>
> 73
> paul
>
> So there's another interesting idea on using a common LO for all of
> these boards.
>
> 73,
>
> David W9HQ
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, aa9il@... wrote:
> >

> >Hi all
> >Im a dedicated LO per xverter kind of guy.
> >I recall seeing different multiband schemes
> >but my personal preference is the simplicity
> >of complete xverters as stand alone - if for
> >anything that the single LO could also be a
> >single point of failure.? Plus for me, this works
> >out as I have surplus LO's for different bands 902,
> >1.2, 2304 so really only need the actual xverter
> >boards themselves.
>
> >73 de Mike
> >AA9IL
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

95. another group purchase of W1GHZ transverter parts?

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-24 11:37:20 UTC
From: James French
Topic: 95 Message: 95

I am tentatively thinking about doing another group purchase of parts and boards for the W1GHZ transverters.

Any interest?

Please pass this message along to other groups that I don't have listed in the email addresses above that you might think would show interest.

James W8ISS

96. Re: [w1ghz-transverter-builders] another group purchase of W1GHZ transverter parts?

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-24 12:46:23 UTC
From: Ethan Miller K8GU
Topic: 95 Message: 96

James,

I probably would be interested in getting the remaining components and
boards to be 100% QRV on 2304 and 3456 after I scooped up the
leftovers from the first round. Even though I only have the 903+LO
boards built and not even fully tested, yet!

Thanks and 73,

--Ethan, K8GU/3.

On Tue, Aug 24, 2010 at 7:37 AM, James French <w8iss@...> wrote:
> I am tentatively thinking about doing another group purchase of parts and
> boards for the W1GHZ transverters.
>
> Any interest?
>
> Please pass this message along to other groups that I don't have listed in the
> email addresses above that you might think would show interest.
>
> James W8ISS
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>
>
>
>

--
http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

97. Re: [w1ghz-transverter-builders] another group purchase of W1GHZ transverter parts?

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-24 15:16:43 UTC
From: Bob Mantell
Topic: 95 Message: 97

I would be interested in 2304 and 3456 also, likely 2 of each.

73 de Bob,

 K4ESA EM74qc

Bob Mantell
k4esa@...

--- On Tue, 8/24/10, Ethan Miller K8GU <ethan@...> wrote:

From: Ethan Miller K8GU <ethan@...>
Subject: Re: [w1ghz-transverter-builders] another group purchase of W1GHZ transverter parts?
To: w1ghz-transverter-builders@yahoogroups.com
Date: Tuesday, August 24, 2010, 12:46 PM

James,

I probably would be interested in getting the remaining components and
boards to be 100% QRV on 2304 and 3456 after I scooped up the
leftovers from the first round. Even though I only have the 903+LO
boards built and not even fully tested, yet!

Thanks and 73,

--Ethan, K8GU/3.

On Tue, Aug 24, 2010 at 7:37 AM, James French <w8iss@...> wrote:
> I am tentatively thinking about doing another group purchase of parts and
> boards for the W1GHZ transverters.
>
> Any interest?
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> Please pass this message along to other groups that I don't have listed in the
> email addresses above that you might think would show interest.
>
> James W8ISS
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>
>

>

--
http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

Yahoo! Groups Links

98. 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-24 22:11:55 UTC
From: James French
Topic: 98 Message: 98

Hello Everyone.

I announced earlier that I was thinking about doing another group purchase of parts and boards in the near future. So far I have gotten a good response.

What I am wondering about before I do it is with the 900 MHz boards.

When I did the purchase last year, I was going with a replacement for the INA-10386 MMIC which was recommended thru the 4SMicrowave group as a good replacement. The replacement was the SGA-3586Z MMIC.

I have seen postings here that stated that the INA-10386 was obtainable from a few sources that I had not considered. Some said there were some issues with the SGA-3586. Some said that the SGA-3586 was not as good as the INA-10386. Should I stick with the SGA or try to locate some of the INA MMICs if I do this next proposed group purchase? Recommendations?

There were some issues with circuit traces on the 900 MHz PCB also that I had not known about either. Should I include that information when I package up the kits. I do think it would be better to suggest them here or to the 4SMicrowave group for that knowledge. Comments?

I am not that technically adapt and don't understand everything that should be taken into consideration. I try my best to understand it all but know that I will not understand it all either.

James W8ISS

99. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-24 22:40:02 UTC
From: Zack Widup
Topic: 98 Message: 99

The SGA-3586 is not a good choice for a replacement of the INA-10386.
However, I think the SGA-4586 is. The 4586 has quite a better noise figure
than the 3586.

What are the issues with the circuit traces? I'm almost to the point of
putting my 903 MHz unit all together in a box and I wonder what problems
others have found.

73, Zack W9SZ

On Tue, Aug 24, 2010 at 5:11 PM, James French <w8iss@...>wrote:

>
>
> Hello Everyone.
>
> I announced earlier that I was thinking about doing another group purchase
> of
> parts and boards in the near future. So far I have gotten a good response.
>
> What I am wondering about before I do it is with the 900 MHz boards.
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> When I did the purchase last year, I was going with a replacement for the
> INA-10386 MMIC which was recommended thru the 4SMicrowave group as a good
> replacement. The replacement was the SGA-3586Z MMIC.
>
> I have seen postings here that stated that the INA-10386 was obtainable
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> few sources that I had not considered. Some said there were some issues
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> the SGA-3586. Some said that the SGA-3586 was not as good as the INA-10386.
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> Should I stick with the SGA or try to locate some of the INA MMICs if I do
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> I am not that technically adapt and don't understand everything that should
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> taken into consideration. I try my best to understand it all but know that
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> will not understand it all either.
>
> James W8ISS
>
>

100. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-24 23:28:12 UTC
From: WE7X@aol.com
Topic: 98 Message: 100

James,
I am potentially interested.
Is there a web site or other place where one can see what is involved
and what costs may be incurred to get one of the kits operational?
thanks,
Rod
WE7X
Issaquah, WA.

101. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 00:47:37 UTC
From: David Palm
Topic: 98 Message: 101

Hi Zack,

The information about the 902 PCB trace may be found here:

http://groups.yahoo.com/group/w1ghz-transverter-builders/message/4

Interesting about the SGA-3586. I suspect it's not so much a matter of a
"bad" part, but maybe a not ideal part (??).

73,

David W9HQ

On 8/24/10, Zack Widup <w9sz.zack@...> wrote:
>
>
>
> The SGA-3586 is not a good choice for a replacement of the INA-10386.
> However, I think the SGA-4586 is. The 4586 has quite a better noise figure
> than the 3586.
>
> What are the issues with the circuit traces? I'm almost to the point of
> putting my 903 MHz unit all together in a box and I wonder what problems
> others have found.
>
> 73, Zack W9SZ
>
> On Tue, Aug 24, 2010 at 5:11 PM, James French <w8iss@wideopenwest.com>wrote:
>
>>
>>
>> Hello Everyone.
>>
>> I announced earlier that I was thinking about doing another group purchase
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>> parts and boards in the near future. So far I have gotten a good response.
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>> should be
>> taken into consideration. I try my best to understand it all but know that
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>> will not understand it all either.
>>
>> James W8ISS
>>
>
>
>

102. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 00:47:35 UTC
From: David Palm
Topic: 98 Message: 102

Hi Zack,

The information about the 902 PCB trace may be found here:

http://groups.yahoo.com/group/w1ghz-transverter-builders/message/4

Interesting about the SGA-3586. I suspect it's not so much a matter of a
"bad" part, but maybe a not ideal part (??).

73,

David W9HQ

On 8/24/10, Zack Widup <w9sz.zack@...> wrote:
>
>
>
> The SGA-3586 is not a good choice for a replacement of the INA-10386.
> However, I think the SGA-4586 is. The 4586 has quite a better noise figure
> than the 3586.
>
> What are the issues with the circuit traces? I'm almost to the point of
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> others have found.
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> 73, Zack W9SZ
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> On Tue, Aug 24, 2010 at 5:11 PM, James French <w8iss@wideopenwest.com>wrote:
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>> I
>> will not understand it all either.
>>
>> James W8ISS
>>
>
>
>

103. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 00:58:01 UTC
From: Scott
Topic: 98 Message: 103

I'd just go with the INA-10386. They are available at Dan's Small
Parts and Kits for $2.85 each.
http://www.danssmallpartsandkits.net/

Scott
N0EDV

On 8-24-2010 22:11, James French wrote:
>
> Hello Everyone.
>
> I announced earlier that I was thinking about doing another group
> purchase of
> parts and boards in the near future. So far I have gotten a good response.
>
> What I am wondering about before I do it is with the 900 MHz boards.
>
> When I did the purchase last year, I was going with a replacement for the
> INA-10386 MMIC which was recommended thru the 4SMicrowave group as a good
> replacement. The replacement was the SGA-3586Z MMIC.
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> I have seen postings here that stated that the INA-10386 was
> obtainable from a
> few sources that I had not considered. Some said there were some
> issues with
> the SGA-3586. Some said that the SGA-3586 was not as good as the
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> Should I stick with the SGA or try to locate some of the INA MMICs if
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> There were some issues with circuit traces on the 900 MHz PCB also
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> should be
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> that I
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>
> James W8ISS

>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

104. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 05:17:15 UTC
From: Zack Widup
Topic: 98 Message: 104

I'm not sure how the SGA3586 got recommended or by whom. I originaly suggested the SGA4586 as a substitute because I've had good experiences with them in other transverters from 144 thru 1296 MHz and I have about 50 of them.

If you look at the spec sheets for the two, you'll see the specs for the 4586 are much better.

I also have some INA-10386's. I can try those too. There is a guy on eBay who sells them in lots of 10 pretty cheaply.

73, Zack W9SZ

On Tue, Aug 24, 2010 at 7:47 PM, David Palm <thepalmhq@...> wrote:

>
>
> Hi Zack,
>
> The information about the 902 PCB trace may be found here:
>
> http://groups.yahoo.com/group/w1ghz-transverter-builders/message/4
>
> Interesting about the SGA-3586. I suspect it's not so much a matter of a
> "bad" part, but maybe a not ideal part (??).
>
> 73,
>
> David W9HQ
>
>
>
> On 8/24/10, Zack Widup <w9sz.zack@...> wrote:
>
>>
>>
>> The SGA-3586 is not a good choice for a replacement of the INA-10386.
>> However, I think the SGA-4586 is. The 4586 has quite a better noise figure
>> than the 3586.
>>
>> What are the issues with the circuit traces? I'm almost to the point of
>> putting my 903 MHz unit all together in a box and I wonder what problems
>> others have found.
>>
>> 73, Zack W9SZ
>>

>> On Tue, Aug 24, 2010 at 5:11 PM, James French <w8iss@...>wrote:
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>>> Hello Everyone.
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>>> I announced earlier that I was thinking about doing another group
>>> purchase of
>>> parts and boards in the near future. So far I have gotten a good
>>> response.
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>>> I am not that technically adapt and don't understand everything that
>>> should be
>>> taken into consideration. I try my best to understand it all but know
>>> that I
>>> will not understand it all either.
>>>
>>> James W8ISS
>>>
>>
>>
>
>

105. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 11:51:02 UTC
From: James French
Topic: 98 Message: 105

On Wednesday 25 August 2010 01:17:15 you wrote:
> I'm not sure how the SGA3586 got recommended or by whom. I originaly
> suggested the SGA4586 as a substitute because I've had good experiences
> with them in other transverters from 144 thru 1296 MHz and I have about 50
> of them.
>
> If you look at the spec sheets for the two, you'll see the specs for the
> 4586 are much better.
>
> I also have some INA-10386's. I can try those too. There is a guy on eBay
> who sells them in lots of 10 pretty cheaply.
>
> 73, Zack W9SZ
>

Hello Zack.

I used information from the 4SMicrowave group for the decision on using the SGA3586's. This was done way before this group came to be and everyone was finding the SGA3586's lacking. I also didn't know about a couple of other sources for the INA-10386's either like Dan's small parts and kits. I would never have thought of looking there for them either...:(

Now I know better and have an idea where to get the part from.

BTW - While I am thinking about these things and happen to remember seeing it posted here. There was something about the crystal oscillators that I had chosen to be used in these kits. I'll take a look in the archives and see if I can find it later today after some sleep first. Maybe David will have the link posted for that message by the time I come back and look for it.

I will also have to take a look at digikey's web page to see what has become of the chip capacitors and resistors that were used. I was getting emails from digikey saying they were switching suppliers for them just after I made my purchase last year with suggestions on what to use in their place.

I am learning little by little which does help me make better choices and selections.

James W8ISS

106. RE: another group purchase of W1GHZ transverter parts?

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 13:00:10 UTC
From: James French
Topic: 95 Message: 106

Hello Everyone.

Here is a reply I sent to a few yesterday when asked what kits and boards I would be offering as part of another group purchase. I hope this answers some of the questions everyone has.

James W8ISS
=====

Paul W1GHZ has designed a 1296 transverter along with ones for 900, 3456, and 2304 MHz. Here's the link to the paper for you to take a look at and decide what you want to do:
http://www.w1ghz.org/MBT/Multiband_Four_Microwave_Transverters.pdf

When I did the group purchase last year, here prices I was charging at the time:

Parts kits
900MHz transverter kits - 15 dollars
1296RSU transverter kits - 15 dollars
2304 transverter kits - 25 dollars
3456 transverter kits - 25 dollars
Relay kits - Regular mount - 7 dollars
720LO kits - 10 dollars
756LO kits - 10 dollars
1152LO kits - 11 dollars
NO SMA connectors, copper pipe caps, screws, or boards as part of parts kits. You supply these.

Boards
900MHZ board - 9 dollars
1296RSU board - 9 dollars
2304 board - 9 dollars
3456 board - 9 dollars
720LO board - 11 dollars
756LO board - 11 dollars
1156LO board - 11 dollars
Relay board - 3 dollars

Remember, these were the prices I was charging last year in quantity. They may increase or decrease some depending on how much interest there is and how much parts have increased in price or if I need to find a replacement part. I am trying to get an idea if there is an interest to do it again. The above prices were if you payed with a money order or check. Add a dollar per parts kit or board if you use paypal.

Hope this helps answer your questions.

James W8ISS

107. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 13:55:30 UTC
From: Zack Widup
Topic: 98 Message: 107

Interesting. I wonder how they happened to choose that particular MMIC?

I have used the same LO scheme in all of my other phase-locked transverters and they perform very well through 10 GHz. Accuracy is probably on the order of 10 Hz at 1296. But it's a bit more work to put one together. I think it's worth it, though.

73, Zack W9SZ

On Wed, Aug 25, 2010 at 6:51 AM, James French <w8iss@...>wrote:

> On Wednesday 25 August 2010 01:17:15 you wrote:
> > I'm not sure how the SGA3586 got recommended or by whom. I originaly
> > suggested the SGA4586 as a substitute because I've had good experiences
> > with them in other transverters from 144 thru 1296 MHz and I have about
> 50
> > of them.
> >
> > If you look at the spec sheets for the two, you'll see the specs for the
> > 4586 are much better.
> >
> > I also have some INA-10386's. I can try those too. There is a guy on eBay
> > who sells them in lots of 10 pretty cheaply.
> >
> > 73, Zack W9SZ
> >
>
> Hello Zack.
>
> I used information from the 4SMicrowave group for the decision on using the
> SGA3586's. This was done way before this group came to be and everyone was
> finding the SGA3586's lacking. I also didn't know about a couple of other
> sources for the INA-10386's either like Dan's small parts and kits. I would
> never have thought of looking there for them either...:(
>
> Now I know better and have an idea where to get the part from.
>
> BTW - While I am thinking about these things and happen to remember seeing
> it
> posted here. There was something about the crystal oscillators that I had
> chosen to be used in these kits. I'll take a look in the archives and see
> if I
> can find it later today after some sleep first. Maybe David will have the
> link
> posted for that message by the time I come back and look for it.
>

> I will also have to take a look at digikey's web page to see what has
> become
> of the chip capacitors and resistors that were used. I was getting emails
> from
> digikey saying they were switching suppliers for them just after I made my
> purchase last year with suggestions on what to use in their place.
>
> I am learning little by little which does help me make better choices and
> selections.
>
> James W8ISS
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>
>
>

108. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-25 14:18:04 UTC
From: Ethan Miller K8GU
Topic: 98 Message: 108

> Interesting. I wonder how they happened to choose that particular MMIC?

Somebody had a bunch of them in their junk box?

Zack had already suggested the SGA-4586 to me before I bought the W1GHZ kits from W8ISS. So, I had a few dozen of them that I picked up on eBay for < $1 each. I compared them to the SGA-3586 and elected to do the substitution myself, keeping the SGA-3586s for a less-critical application.

Les' suggestion to "bundle" the kits is a good one. Perhaps the best way is for someone (not necessarily James) to make a list of what it takes to get these QRV to varying degrees. I would do it, except I've not actually finished one to the point that I can say I've thought of everything. I have a couple of vacation days next week and hope to maybe get to through the higher-priority (for me) HF and 6-meter station work to finally get back to the UHF/microwave stuff.

73,

--Ethan, K8GU/3.

--
http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

109. Re: [w1ghz-transverter-builders] 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-26 20:38:20 UTC
From: Zack Widup
Topic: 98 Message: 109

I must have a later version of the board. That trace is on my board but it
does not go to ground. It goes to the 47 ohm resistor on the other side of
the board that is the supply voltage for the MMIC in the LO path.

73, Zack W9SZ

On Tue, Aug 24, 2010 at 7:47 PM, David Palm <thepalmhq@...> wrote:

>
>
> Hi Zack,
>
> The information about the 902 PCB trace may be found here:
>
> http://groups.yahoo.com/group/w1ghz-transverter-builders/message/4
>
> 73,
>
> David W9HQ
>
>
>
>
> On 8/24/10, Zack Widup <w9sz.zack@gmail.com> wrote:
>>
>>
>>
>> The SGA-3586 is not a good choice for a replacement of the INA-10386.
>> However, I think the SGA-4586 is. The 4586 has quite a better noise figure
>> than the 3586.
>>
>> What are the issues with the circuit traces? I'm almost to the point of
>> putting my 903 MHz unit all together in a box and I wonder what problems
>> others have found.
>>
>> 73, Zack W9SZ
>>
>> On Tue, Aug 24, 2010 at 5:11 PM, James French <w8iss@wideopenwest.com>wrote:
>>
>>>
>>>
>>> Hello Everyone.
>>>
>>> I announced earlier that I was thinking about doing another group
>>> purchase of
>>> parts and boards in the near future. So far I have gotten a good

>>> response.
>>>
>>> What I am wondering about before I do it is with the 900 MHz boards.
>>>
>>> When I did the purchase last year, I was going with a replacement for the
>>>
>>> INA-10386 MMIC which was recommended thru the 4SMicrowave group as a good
>>>
>>> replacement. The replacement was the SGA-3586Z MMIC.
>>>
>>> I have seen postings here that stated that the INA-10386 was obtainable
>>> from a
>>> few sources that I had not considered. Some said there were some issues
>>> with
>>> the SGA-3586. Some said that the SGA-3586 was not as good as the
>>> INA-10386.
>>> Should I stick with the SGA or try to locate some of the INA MMICs if I
>>> do
>>> this next proposed group purchase? Recommendations?
>>>
>>> There were some issues with circuit traces on the 900 MHz PCB also that I
>>> had
>>> not known about either. Should I include that information when I package
>>> up
>>> the kits. I do think it would be better to suggest them here or to the
>>> 4SMicrowave group for that knowledge. Comments?
>>>
>>> I am not that technically adapt and don't understand everything that
>>> should be
>>> taken into consideration. I try my best to understand it all but know
>>> that I
>>> will not understand it all either.
>>>
>>> James W8ISS
>>>
>>
>>
>
>

110. Re: another group purchase of W1GHZ transverter parts?

Yahoo group: w1ghz-transverter-builders
Date: 2010-08-29 12:46:29 UTC
From: ke4qdl
Topic: 95 Message: 110

I would be interested in another group buy, myself.

-Chase

--- In w1ghz-transverter-builders@yahoogroups.com, James French <w8iss@...> wrote:
>
> Hello Everyone.
>
> Here is a reply I sent to a few yesterday when asked what kits and boards I
> would be offering as part of another group purchase. I hope this answers some
> of the questions everyone has.
>
> James W8ISS
> =====
>
> Paul W1GHZ has designed a 1296 transverter along with ones for 900, 3456, and
> 2304 MHz. Here's the link to the paper for you to take a look at and decide
> what you want to do:
> http://www.w1ghz.org/MBT/Multiband_Four_Microwave_Transverters.pdf
>
> When I did the group purchase last year, here prices I was charging at the
> time:
>
> Parts kits
> 900MHz transverter kits - 15 dollars
> 1296RSU transverter kits - 15 dollars
> 2304 transverter kits - 25 dollars
> 3456 transverter kits - 25 dollars
> Relay kits - Regular mount - 7 dollars
> 720LO kits - 10 dollars
> 756LO kits - 10 dollars
> 1152LO kits - 11 dollars
> NO SMA connectors, copper pipe caps, screws, or boards as part of parts kits.
> You supply these.
>
> Boards
> 900MHZ board - 9 dollars
> 1296RSU board - 9 dollars
> 2304 board - 9 dollars
> 3456 board - 9 dollars
> 720LO board - 11 dollars
> 756LO board - 11 dollars
> 1156LO board - 11 dollars
> Relay board - 3 dollars
>

> Remember, these were the prices I was charging last year in quantity. They may
> increase or decrease some depending on how much interest there is and how much
> parts have increased in price or if I need to find a replacement part. I am
> trying to get an idea if there is an interest to do it again. The above prices
> were if you payed with a money order or check. Add a dollar per parts kit or
> board if you use paypal.
>
> Hope this helps answer your questions.
>
> James W8ISS
>

111. 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2010-09-07 17:45:00 UTC
From: James French
Topic: 111 Message: 111

Hello everyone.

I am officially announcing that I have opened up purchases of boards and parts for this years group purchase of boards and parts for the W1GHZ transverters.

You can find the page and links for purchasing here:
http://w8iss.no-ip.org

You'll have two options for purchasing: mail using Money order or Paypal. Realize that if you use the Paypal option, the price increases by one dollar per board or kit so as to offset the Paypal charges.

I will be using Priority mailing via the USPS as I did last year since I had no problems with everyone receiving their package. The cost there is 15 dollars which should pay for the shipping plus insurance. As for International orders, I am still figuring that out..:(I have to check on the Global priority to see what it would be. Please ask before you place an order. I should have more information in a couple of days about this.

I have placed the order deadline as October 17th. I would like to have everything out by Thanksgiving if possible and the latest by the end of November. That is my goal currently and everyone knows how that can change...:)

James W8ISS

112. Re: 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-01 15:31:17 UTC
From: N5ZTW
Topic: 98 Message: 112

Scott where on Dan's page can these be found. His page is horrible in that there is no index so you have to look through his entire page of stuff. I could not find them.
Bill N5ZTW

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> I'd just go with the INA-10386. They are available at Dan's Small
> Parts and Kits for $2.85 each.
> http://www.danssmallpartsandkits.net/
>
> Scott
> N0EDV
>
> On 8-24-2010 22:11, James French wrote:
> >
> > Hello Everyone.
> >
> > I announced earlier that I was thinking about doing another group
> > purchase of
> > parts and boards in the near future. So far I have gotten a good response.
> >
> > What I am wondering about before I do it is with the 900 MHz boards.
> >
> > When I did the purchase last year, I was going with a replacement for the
> > INA-10386 MMIC which was recommended thru the 4SMicrowave group as a good
> > replacement. The replacement was the SGA-3586Z MMIC.
> >
> > I have seen postings here that stated that the INA-10386 was
> > obtainable from a
> > few sources that I had not considered. Some said there were some
> > issues with
> > the SGA-3586. Some said that the SGA-3586 was not as good as the
> > INA-10386.
> > Should I stick with the SGA or try to locate some of the INA MMICs if
> > I do
> > this next proposed group purchase? Recommendations?
> >
> > There were some issues with circuit traces on the 900 MHz PCB also
> > that I had
> > not known about either. Should I include that information when I
> > package up
> > the kits. I do think it would be better to suggest them here or to the
> > 4SMicrowave group for that knowledge. Comments?
> >
> > I am not that technically adapt and don't understand everything that

> > should be
> > taken into consideration. I try my best to understand it all but know
> > that I
> > will not understand it all either.
> >
> > James W8ISS
> >
> >
>
> --
> Scott
> http://corbenflyer.tripod.com/
> Flying Corben Junior Ace - Building RV-4
> Gotta Fly or Gonna Die
>

113. Re: [w1ghz-transverter-builders] Re: 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-01 16:02:50 UTC
From: Ethan Miller K8GU
Topic: 98 Message: 113

Bill,

Try searching the page for "INA-10386". They are about 1/4 of the way
down, just after the crystals.

73,

--Ethan, K8GU/3.

On Fri, Oct 1, 2010 at 11:31 AM, N5ZTW <n5ztw@...> wrote:
> Scott where on Dan's page can these be found. His page is horrible in that there is no
index so you have to look through his entire page of stuff. I could not find them.
> Bill N5ZTW
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> --- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
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> Yahoo! Groups Links
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http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

114. Re: [w1ghz-transverter-builders] Re: 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-01 16:16:31 UTC
From: James French
Topic: 98 Message: 114

On Friday 01 October 2010 11:31:17 N5ZTW wrote:
> Scott where on Dan's page can these be found. His page is horrible in that
> there is no index so you have to look through his entire page of stuff. I
> could not find them. Bill N5ZTW
>
>

Just do a 'find' in your web browser and it'll be about a 1/4 to 1/2 way down the page. Dan is offering them for 2.85 last I looked.

BTW - there still is time to put an order in for any parts kits or boards for this years group purchase. I haven't gotten as many orders as I did last year...:(

James W8ISS
For the group purchase:
http://w8iss.no-ip.org

115. Re: [w1ghz-transverter-builders] Re: 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-01 18:04:29 UTC
From: Zack Widup
Topic: 98 Message: 115

This guy has some for sale fairly often on eBay - current auction number:

150202584216

"rfextra" is one of the best eBay sellers around. I've bought
literally hundreds of things from him.

73, Zack W9SZ

On 10/1/10, N5ZTW <n5ztw@...> wrote:
> Scott where on Dan's page can these be found. His page is horrible in that
> there is no index so you have to look through his entire page of stuff. I
> could not find them.
> Bill N5ZTW
>
> --- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...>
> wrote:
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>> On 8-24-2010 22:11, James French wrote:
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>> > James W8ISS
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>> >
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>> Scott
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>> Gotta Fly or Gonna Die
>>
>
>
>

116. Re: [w1ghz-transverter-builders] Re: 900 MHz boards and the issues

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-01 22:09:13 UTC
From: Scott
Topic: 98 Message: 116

I agree, the site should have indexes, but we get what we get. It is
right after the crystals....

Here is a copy of the section:

INA-10386

LOW NOISE, CASCADABLE

SILICON BIPOLAR MMIC AMPLIFIER

FEATURES

* *CASCADABLE 50 OHM GAIN BLOCK*
* *3DB BANDWIDTH:*

DC TO 1.8 GHZ

* *26DB TYPICAL GAIN AT*

1.5 GHZ

* CLICK HERE FOR DATA SHEET
<http://literature.agilent.com/litweb/pdf/5967-6159E.pdf>*

*THE INA-10386 IS A LOW NOISE SILCON BIPOLOR MONOLITHIC
MICRO WAVE INTERGRATED CIRCUIT FEEDBACK AMPLIFIER HOUSED IN
A LOW COST SURFACE MOUNT PLASTIC PACKAGE..*

THESE WOULD MAKE A GOOD REPLACEMENT FOR THE MAR-1

CHECK OUT THE SPEC'S

*THESE ARE PACKAGED IN THE FACTORY TAPE...PRICE ON THESE ARE
..... $2.85 EA. *

Scott
N0EDV

On 10-1-2010 15:31, N5ZTW wrote:
>
> Scott where on Dan's page can these be found. His page is horrible in
> that there is no index so you have to look through his entire page of
> stuff. I could not find them.
> Bill N5ZTW
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Scott
> <acepilot@...> wrote:

> >
> > I'd just go with the INA-10386. They are available at Dan's Small
> > Parts and Kits for $2.85 each.
> > http://www.danssmallpartsandkits.net/
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> > > James W8ISS
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>

--
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117. A5 MMIC

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-03 00:31:01 UTC
From: ke4qdl
Topic: 117 Message: 117

Hi all,

I am putting together a 902 (2008a version) board and have a couple of questions. I think I know the answers, but need to confirm.

1) The A5 MMIC is optional, yes? If so, where am I jumpering from and to (and if not, what should I pick as an MMIC and do differently, etc.)? Also, what should I use as a jumper? (I believe I am supposed to cut the trace off the side between C6 and C7 and jumper between those two pads, yes?)

2) Is there another 902 parts placement drawing for the 2008a board? I'd like to check my work.

3) What is the consensus on the connectors to use? Are people happy with the PCB to SMA mount or are people bringing their connectors out to the case? Which begs the question- what kind of enclosures are folks using?

4) What is the dimension for the 18pF caps? I've already lost two in the carpet! Where is the best place to get some spares?

Any help is most appreciated!

Best,
Chase
W4TI

118. Re: [w1ghz-transverter-builders] A5 MMIC

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-03 19:03:23 UTC
From: Steve Bunch
Topic: 117 Message: 118

Chase,

On Oct 2, 2010, at 7:31 PM, ke4qdl wrote:

I am putting together a 902 (2008a version) board and have a couple of
questions. I think I know the answers, but need to confirm.
>1) The A5 MMIC is optional, yes? If so, where am I jumpering from and to (and if
>not, what should I pick as an MMIC and do differently, etc.)? Also, what should
>I use as a jumper? (I believe I am supposed to cut the trace off the side
>between C6 and C7 and jumper between those two pads, yes?)
I haven't built that board, but some of the designs do have optional MMIC positions if you need to have more gain in a path, for example to get more LO or IF gain. The way you decide if you need it or not, and what kind of MMIC to use, is to look at the signal strengths and gain. MMIC's have different gains and output power capability, and if you need, say, 10dB of gain, you need to look for an MMIC whose gain is in that range, rather than, say, 20dB (or vice versa), or you can overload or underdrive a following stage. You won't necessarily damage them at these power levels (the spec sheet tells you the level at which damage can occur), but overloading tends to generate harmonics and other distortions to the signal, and insufficient gain usually results in lower power or sensitivity. If you need more output power, you should make sure the MMIC you pick can supply that much power without distortion (it's good practice to stay under the 1dB compression point). If you're not sure, you should ask for advice based on the specific power level you plan to feed into the IF or wherever the optional MMIC is in the path.

When "jumpering" across a MMIC, the correct microwave engineering solution is to use a conductor that matches the width of the traces, bridging across the input and output to create a continuous-impedance stripline (on 1/16" glass-epoxy PCB material, a 50 ohm line is about .1" wide, which is what you'll often see). If you use, say, a skinny piece of wire, you will create an impedance bump in the line. How much will it matter? "It depends". There's a chance that it'll work just fine, depending on how long the lines are, what frequency you're using it at (the higher the frequency is, the more likely it is to matter), and so on, but it's not a big deal to do it right and not have to worry about it. The other two terminals on the MMIC's are grounds - you don't have to do anything with them other than avoiding shorting the transmission line jumper to them, and you wouldn't install the resistor that supplies power to the output terminal of the MMIC.

I bought a roll of silver-plated copper foil at a hobby shop. It's sticky on one side, maybe 1/4" wide. It's used in making hobby stained glass, and one roll is a lifetime supply for this sort of thing -- comes in 100' or so rolls, not very expensive, solders unbelievably well. You can use it to wrap around the edges of boards to make a good connection between the two sides, for jumpers and custom traces, sealing joints, jumpering between boards if you're attaching

Paul's relay boards to transciever boards, and all sorts of things. I always wondered about soldering the adhesive, but it seems to act like a flux and I haven't seen any problems after several years of use. I also have purchased sheets of thin (1oz) copper foil on a flexible peel-off sheet that you cut to shape -- peel and stick. It also works fine. But if you don't do a lot of construction and don't plan to do stained glass, you can peel some copper off a PCB, use copper flashing, use thin brass sheet cut with scissors (any hardware store has it), or whatever. Just make it a goal to match the width of the stripline for results you won't have to worry about at any frequency.

2) Is there another 902 parts placement drawing for the 2008a board? I'd like to check my work.
>3) What is the consensus on the connectors to use? Are people happy with the PCB
>to SMA mount or are people bringing their connectors out to the case? Which begs
>the question- what kind of enclosures are folks using?
I usually use PCB-mounted SMA connectors, then use SMA-to-SMA jumpers to connect to other things in the same box, or to a hole-mounted female-female connector to get through the box wall. This makes it easy to take the board out to work on it, insert attenuators and test equipment, etc. You can find batches of jumper cables on ebay for reasonable prices, or pick them up at hamfests. Shop around a bit, the prices vary over a wide range. Unfortunately, this is a relatively expensive approach, and not every project is worth the expense. If I'm not going to do much bench experimentation with a board, or if the connectors seem like overkill for the project (they often cost more than the electronics!), or if space is tight, sometimes I will strip two ends of some small-diameter Teflon coax (also readily available at hamfests or ebay), and solder it between boards -- but beware, this can be a headache for test or repair. Sometimes I cut an SMA-to-SMA jumper into two pieces and strip and solder the cut end of one half directly to a PCB. This saves two connectors and some space, which can be a big deal. You can create impedance bumps if you're not careful how you solder coax to the board, so keep the exposed coax conductor very short (I vaguely recall seeing some pictures of Paul Wade boards with soldered coax -- look for pictures like that). You can attach SMA connectors to coax yourself instead of using pre-built jumpers, but the connector pieces are tiny and the tolerances tight. The savings are not likely to be worth the aggravation unless you're doing enough of them to get good at it.

4) What is the dimension for the 18pF caps? I've already lost two in the carpet! Where is the best place to get some spares?
For garden-variety parts, I tend to use Digi-Key. The problem with stocking spares is the minimum count you have to buy and the shipping cost. If you can piggy-back it on something else you needed to order anyway, you don't feel so bad about the shipping, but it's sure annoying to pay through the nose because a part popped onto the rug! I bought inexpensive assortments of surface-mount caps and resistors years ago, can't remember where I got them (probably Jameco or Digi-Key, some caps came from DownEast Microwave), and I don't stress out if a part goes flying. The assortments didn't cost much more than the shipping on a couple of emergency part orders would.

These Paul Wade designs have large margins for error -- when in doubt, build it and see how it works. If the result's not as good as you think it should be,

ask for help and describe the situation in as much detail as you can and someone who's built one may be able to help.

Best of luck!

73,

Steve, K9SRB

Any help is most appreciated!
>
>Best,
>Chase
>W4TI

119. Re: [w1ghz-transverter-builders] A5 MMIC

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-03 21:03:55 UTC
From: Zack Widup
Topic: 117 Message: 119

I think you're referring to the MAR-5 that is in the LO path. The ADE-5 mixer would ideally have +7 dBm of LO power into it. You would have to measure the output you're getting from the LO board to determine if it's necessary. If you have less than about +4 dBm from the LO board, you'd probably need the MAR-5.

I'm using a completely different LO scheme than what Paul used in his design. I'm using the KD6OZH phase-locked LO at 94.75 MHz and use the LO board as a multiplier. My 94.75 MHz LO circuit has an adjustable output level, so I can set it wherever I want to from -10 to about +15 dBm. However, I am only getting +2 dBm max from the LO board with it, so I need the MAR-5 to bring the LO at 758 MHz to the mixer to +7 dBm.

I used the pc-mount SMA connectors for the RF in and out and the LO input but I just ran a piece of small teflon coax from the IF in/out to a BNC connector on the box for the IF frequency. You can use whatever you have or prefer. I see no reason not to use coax soldered directly to the boards between the LO and transverter boards either.

Also, I think I used run-of-the-mill 0804 or 1206 chip caps for the 18 pF.

73, Zack W9SZ

On 10/2/10, ke4qdl <ke4qdl@...> wrote:
> Hi all,
>
> I am putting together a 902 (2008a version) board and have a couple of
> questions. I think I know the answers, but need to confirm.
>
> 1) The A5 MMIC is optional, yes? If so, where am I jumpering from and to
> (and if not, what should I pick as an MMIC and do differently, etc.)? Also,
> what should I use as a jumper? (I believe I am supposed to cut the trace
> off the side between C6 and C7 and jumper between those two pads, yes?)
>
> 2) Is there another 902 parts placement drawing for the 2008a board? I'd
> like to check my work.
>
> 3) What is the consensus on the connectors to use? Are people happy with
> the PCB to SMA mount or are people bringing their connectors out to the
> case? Which begs the question- what kind of enclosures are folks using?
>
> 4) What is the dimension for the 18pF caps? I've already lost two in the
> carpet! Where is the best place to get some spares?
>
> Any help is most appreciated!
>

> Best,
> Chase
> W4TI
>
>
>

120. Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-19 13:52:26 UTC
From: Vince
Topic: 111 Message: 120

--- In w1ghz-transverter-builders@yahoogroups.com, James French <w8iss@...> wrote:
> I am officially announcing that I have opened up purchases of boards and parts
> for this years group purchase of boards and parts for the W1GHZ transverters.

...

> I have placed the order deadline as October 17th. I would like to have
> everything out by Thanksgiving if possible and the latest by the end of
> November. That is my goal currently and everyone knows how that can
> change...:)

Thanks for organizing this. I admit to being idly curious how many sold, thoughts like I wonder how many of us will be building a whatever GHz board "together" here on the yahoogroup. As the weather starts to cool, I can't be the only one looking forward to snowy weather and hot SMD soldering iron afternoons? Its going to be a fun winter, I think.

73 de Vince N9NFB EN53

121. Re: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-19 14:06:47 UTC
From: James French
Topic: 111 Message: 121

Hello Vince.

If you post a reminder message about this at the end of November after I am done sending the packages out, I'll give a run down for this years purchase.

Sorry to say, I had to rebuild my spreadsheet from scratch this year, so I can't give any numbers for last year...:(Thought I had saved that to a cd or usb stick, but couldn't find it. It would have made my life a little easier if I could have found that spreadsheet to use.

James W8ISS

122. Re: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-19 18:59:09 UTC
From: Bob Mantell
Topic: 111 Message: 122

I would be more interested in knowing how many folks finished up working units.

73 de Bob,

 N4AN EM74qc

Bob Mantell
k4esa@...

--- On Tue, 10/19/10, Vince <vince@...> wrote:

From: Vince <vince@...>
Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts
To: w1ghz-transverter-builders@yahoogroups.com
Date: Tuesday, October 19, 2010, 1:52 PM

--- In w1ghz-transverter-builders@yahoogroups.com, James French <w8iss@...> wrote:
> I am officially announcing that I have opened up purchases of boards and parts
> for this years group purchase of boards and parts for the W1GHZ transverters.

...

> I have placed the order deadline as October 17th. I would like to have
> everything out by Thanksgiving if possible and the latest by the end of
> November. That is my goal currently and everyone knows how that can
> change...:)

Thanks for organizing this. I admit to being idly curious how many sold, thoughts like I wonder how many of us will be building a whatever GHz board "together" here on the yahoogroup. As the weather starts to cool, I can't be the only one looking forward to snowy weather and hot SMD soldering iron afternoons? Its going to be a fun winter, I think.

73 de Vince N9NFB EN53

Yahoo! Groups Links

123. Re: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-19 21:50:52 UTC
From: Scott
Topic: 111 Message: 123

Yes...you are. I don't know of anyone who looks forward to 4 feet of snow ;) However, I will agree with your desire to inhale some solder smoke over the next 6 months :)

N0EDV

On 10-19-2010 13:52, Vince wrote:
>
>
>
> As the weather starts to cool, I can't be the only one looking
> forward to snowy weather and hot SMD soldering iron afternoons?
>
> 73 de Vince N9NFB EN53
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

124. On 902 and looking for contacts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-29 18:47:48 UTC
From: bob_wa6ufq
Topic: 124 Message: 124

Hi,

I'm up and running on 902 using a HB transverter. I'm located in Austin, TX; running 150W out.

73,

Bob WA6UFQ

125. Re: [w1ghz-transverter-builders] On 902 and looking for contacts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-29 21:28:35 UTC
From: Scott
Topic: 124 Message: 125

I have about 125W, but I'm in Bloomer, WI (EN45fa). I would love to
test out my amp here but think we are too far ;)

My amp is going on ebay tonight as I have a 300W amp to modify for use
here....

N0EDV

On 10-29-2010 18:47, bob_wa6ufq wrote:
>
> Hi,
>
> I'm up and running on 902 using a HB transverter. I'm located in
> Austin, TX; running 150W out.
>
> 73,
>
> Bob WA6UFQ
>
>

--
Scott
http://corbenflyer.tripod.com/
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126. 902 MHz Amp For Sale

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-29 22:44:12 UTC
From: Scott
Topic: 126 Message: 126

I'm upgrading to 300W, so I have my lower powered amp for sale...

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=160499820161#shId

--
Scott

N0EDV

http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

127. Re: On 902 and looking for contacts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-30 14:21:50 UTC
From: bob_wa6ufq
Topic: 124 Message: 127

Hi Scott,

You never know . . . . some day we might hear each other. I have been surprised to notice that the Austin, TX beacon signal strength varies quite a bit. It seems to be strongest in the morning.

Earlier this year, the 902 repeater in Corpus was being heard in west Texas (in the morning I think).

I'll be listening for Wisconsin when the band opens.

73,

Bob

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> I have about 125W, but I'm in Bloomer, WI (EN45fa). I would love to
> test out my amp here but think we are too far ;)
>
> My amp is going on ebay tonight as I have a 300W amp to modify for use
> here....
>
> N0EDV
>
>
>
> On 10-29-2010 18:47, bob_wa6ufq wrote:
> >
> > Hi,
> >
> > I'm up and running on 902 using a HB transverter. I'm located in
> > Austin, TX; running 150W out.
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> > 73,
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> > Bob WA6UFQ
> >
> >
>
> --
> Scott
> http://corbenflyer.tripod.com/
> Flying Corben Junior Ace - Building RV-4
> Gotta Fly or Gonna Die
>

128. Re: [w1ghz-transverter-builders] Re: On 902 and looking for contacts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-30 14:26:18 UTC
From: Scott
Topic: 124 Message: 128

Hey Bob,
Yes, 902 is an AWESOME band. I don't have my tower up yet, so I'm pretty limited with an antenna (4 foot Andrew dish) setting on a roof tripod sitting out in the back yard (good for the local contacts and contacts over to the Twin Cities @ about 80 miles or so)

;)

Not much fun with the Armstrong rotator in the middle of winter (and winter is a comin'!)....'

Maybe this summer we can make a QSO :)

N0EDV

On 10-30-2010 14:21, bob_wa6ufq wrote:
>
> Hi Scott,
>
> You never know . . . . some day we might hear each other. I have been
> surprised to notice that the Austin, TX beacon signal strength varies
> quite a bit. It seems to be strongest in the morning.
>
> Earlier this year, the 902 repeater in Corpus was being heard in west
> Texas (in the morning I think).
>
> I'll be listening for Wisconsin when the band opens.
>
> 73,
>
> Bob
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Scott
> <acepilot@...> wrote:
> >
> > I have about 125W, but I'm in Bloomer, WI (EN45fa). I would love to
> > test out my amp here but think we are too far ;)
> >
> > My amp is going on ebay tonight as I have a 300W amp to modify for use
> > here....
> >
> > N0EDV
> >
> >
> >

> > On 10-29-2010 18:47, bob_wa6ufq wrote:
> > >
> > > Hi,
> > >
> > > I'm up and running on 902 using a HB transverter. I'm located in
> > > Austin, TX; running 150W out.
> > >
> > > 73,
> > >
> > > Bob WA6UFQ
> > >
> > >
> >
> > --
> > Scott
> > http://corbenflyer.tripod.com/
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>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

129. Re: On 902 and looking for contacts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-30 14:28:39 UTC
From: bob_wa6ufq
Topic: 124 Message: 129

Scott,

Just visited your site. I brew beer too.

HOMEBREWIN BEER AND RADIOS! LIFE IS GOOD!

Bob WA6UFQ

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> I have about 125W, but I'm in Bloomer, WI (EN45fa). I would love to
> test out my amp here but think we are too far ;)
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> On 10-29-2010 18:47, bob_wa6ufq wrote:
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> > I'm up and running on 902 using a HB transverter. I'm located in
> > Austin, TX; running 150W out.
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> > 73,
> >
> > Bob WA6UFQ
> >
> >
>
> --
> Scott
> http://corbenflyer.tripod.com/
> Flying Corben Junior Ace - Building RV-4
> Gotta Fly or Gonna Die
>

130. Re: [w1ghz-transverter-builders] Re: On 902 and looking for contacts

Yahoo group: w1ghz-transverter-builders
Date: 2010-10-30 14:30:35 UTC
From: Scott
Topic: 124 Message: 130

Yes it is :O

On 10-30-2010 14:28, bob_wa6ufq wrote:
>
> Scott,
>
> Just visited your site. I brew beer too.
>
> HOMEBREWIN BEER AND RADIOS! LIFE IS GOOD!
>
> Bob WA6UFQ
>

131. 902 MHz SSB Activity Group Site

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-01 17:14:13 UTC
From: bob_wa6ufq
Topic: 131 Message: 131

Hi,

I've created a new Yahoo Group Site for 902 MHz SSB users to keep in contact with each other, make schedules, Show N Tell their 902 MHz projects, etc. Come Join. . . .

http://groups.yahoo.com/group/902_MHz_SSB/?yguid=241505163

Bob WA6UFQ

132. Re: [w1ghz-transverter-builders] 902 MHz SSB Activity Group Site

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-01 18:14:06 UTC
From: Zack Widup
Topic: 131 Message: 132

Thanks, I just joined!

I'm about 75% done with my portable W1GHZ transverter (just need to finish the 10 watt power amp) but I've been using the original KK7B design for years. I've been tweaking things in the receive chain for about a year and finally got it the way I want it.

The WD5AGO/W5LUA GaAsFET preamp design that was presented at CSVHF 2007 is ideal for both these transverters. Tommy sells the pc boards for $5 apiece plus an SASE. Great deal!

73, Zack W9SZ

On Mon, Nov 1, 2010 at 12:14 PM, bob_wa6ufq <rhillard@...> wrote:

>
>
> Hi,
>
> I've created a new Yahoo Group Site for 902 MHz SSB users to keep in
> contact with each other, make schedules, Show N Tell their 902 MHz projects,
> etc. Come Join. . . .
>
> http://groups.yahoo.com/group/902_MHz_SSB/?yguid=241505163
>
> Bob WA6UFQ
>
>
>

133. Re: [w1ghz-transverter-builders] 902 MHz SSB Activity Group Site

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-01 18:52:08 UTC
From: aa9il@sbcglobal.net
Topic: 131 Message: 133

Greetings
I just joined as well - I also have a kk7b board and also all the parts to make up a system out of surplus parts. I have found a vast amount of surplus now on the market including the budget 150/300 watt amps. Found some low noise preamps at a swapfest that appear to have the same gain up to 1.2ghz. The LO is going to be a modified Qualcomm phase lock board. Look forward to sharing ideas.
BTW, I picked up off Ebay a board from a seller in 4X land - these were available last year and were sold configured to any LO in a range. I got mine for a 2m IF low side injection. I have not confirmed how this would play in a transverter but for an ultra small 'hand out' transverter, looks like a good start.
73 de Mike
AA9IL

--- On Mon, 11/1/10, Zack Widup <w9sz.zack@...> wrote:

From: Zack Widup <w9sz.zack@...>
Subject: Re: [w1ghz-transverter-builders] 902 MHz SSB Activity Group Site
To: w1ghz-transverter-builders@yahoogroups.com
Date: Monday, November 1, 2010, 1:14 PM

Thanks, I just joined!

I'm about 75% done with my portable W1GHZ transverter (just need to finish the 10 watt power amp) but I've been using the original KK7B design for years. I've been tweaking things in the receive chain for about a year and finally got it the way I want it.

The WD5AGO/W5LUA GaAsFET preamp design that was presented at CSVHF 2007 is ideal for both these transverters. Tommy sells the pc boards for $5 apiece plus an SASE. Great deal!

73, Zack W9SZ

On Mon, Nov 1, 2010 at 12:14 PM, bob_wa6ufq <rhillard@...> wrote:

Hi,

I've created a new Yahoo Group Site for 902 MHz SSB users to keep in contact with each other, make schedules, Show N Tell their 902 MHz projects, etc. Come Join. . . .

http://groups.yahoo.com/group/902_MHz_SSB/?yguid=241505163

Bob WA6UFQ

134. Re: [w1ghz-transverter-builders] 902 MHz SSB Activity Group Site

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-01 19:10:49 UTC
From: David Palm
Topic: 131 Message: 134

Do you have a link for us Zack, where we can order those pre-amp boards?

Thanks and 73,

David W9HQ

On Mon, Nov 1, 2010 at 1:14 PM, Zack Widup <w9sz.zack@...> wrote:

>
>
> Thanks, I just joined!
>
> I'm about 75% done with my portable W1GHZ transverter (just need to finish
> the 10 watt power amp) but I've been using the original KK7B design for
> years. I've been tweaking things in the receive chain for about a year and
> finally got it the way I want it.
>
> The WD5AGO/W5LUA GaAsFET preamp design that was presented at CSVHF 2007 is
> ideal for both these transverters. Tommy sells the pc boards for $5 apiece
> plus an SASE. Great deal!
>
> 73, Zack W9SZ
>

135. Re: [w1ghz-transverter-builders] 902 MHz SSB Activity Group Site

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-01 19:34:38 UTC
From: Zack Widup
Topic: 131 Message: 135

As far as I know, there is no link to order them. You can e-mail Tommy Henderson (wd5ago at hotmail.com) about ordering. He usually responds within a few days. He told me recently he has a lot of the boards made up. He just wants to be mailed the money for the boards ($5 apiece) plus an SASE.

Here is a link to the presentation on the preamp:

http://www.ntms.org/files/CS2007_LNA.pdf

I made the version with the ATF36077/MGA61563 devices.

73, Zack W9SZ

On Mon, Nov 1, 2010 at 2:10 PM, David Palm <thepalmhq@...> wrote:

>
>
> Do you have a link for us Zack, where we can order those pre-amp boards?
>
> Thanks and 73,
>
> David W9HQ
>
>
>
> On Mon, Nov 1, 2010 at 1:14 PM, Zack Widup <w9sz.zack@...> wrote:
>
>>
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>> Thanks, I just joined!
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>> I'm about 75% done with my portable W1GHZ transverter (just need to finish
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>> years. I've been tweaking things in the receive chain for about a year and
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>> ideal for both these transverters. Tommy sells the pc boards for $5 apiece
>> plus an SASE. Great deal!
>>
>> 73, Zack W9SZ
>>
>
>
>

136. Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-05 17:55:19 UTC
From: cduncan62
Topic: 111 Message: 136

Hi Bob, et al.

I successfully got a 1296RSU working but at 50 mW and 20 dB noise figure, was unable to work anyone but myself and "locals" out to several hundred feet.

It might work OK for mountaintopping or roving with a pretty good antenna. I haven't tried it myself, but that was the intent of the design so I think it probably would work. I vaguely remember others making reports to that effect on this or other lists.

Since I'm building this up for home use, I've moved in the direction of QRO and LNA instead of driving around in the mountains. (Indeed, here in southern California, the nearby mountains are closed due to the Station Fire fourteen months ago!) Adding a preamp and power have both helped and I'm now working locals tens of miles away. There's still more to do before it's all working the way I want it and buttoned up. I'm learning quite a bit too about filters and IMD and linearity and how mixers work. It's great!

The story about all this is on my website

http://cbduncan.110mb.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU

but I've made progress in the last several months that isn't reported there yet.

I'm interested in the other bands too but not at high enough priority yet to get in on the current group buy. I understand that above 1296 it's pretty much all mountaintopping (or satellite).

73 de n5bf/6 Courtney

--- In w1ghz-transverter-builders@yahoogroups.com, Bob Mantell <k4esa@...> wrote:
>
> I would be more interested in knowing how many folks finished up working units.
>
>
> 73 de Bob,
>
> N4AN EM74qc
>
> Bob Mantell
> k4esa@...
>
>
> --- On Tue, 10/19/10, Vince <vince@...> wrote:
>
>
> From: Vince <vince@...>
> Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts
> To: w1ghz-transverter-builders@yahoogroups.com

> Date: Tuesday, October 19, 2010, 1:52 PM
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, James French <w8iss@> wrote:
> > I am officially announcing that I have opened up purchases of boards and parts
> > for this years group purchase of boards and parts for the W1GHZ transverters.
>
> ...
>
> > I have placed the order deadline as October 17th. I would like to have
> > everything out by Thanksgiving if possible and the latest by the end of
> > November. That is my goal currently and everyone knows how that can
> > change...:)
>
> Thanks for organizing this. I admit to being idly curious how many sold, thoughts like I wonder how many of us will be building a whatever GHz board "together" here on the yahoogroup. As the weather starts to cool, I can't be the only one looking forward to snowy weather and hot SMD soldering iron afternoons? Its going to be a fun winter, I think.
>
> 73 de Vince N9NFB EN53
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>

137. Re: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-05 18:25:36 UTC
From: Zack Widup
Topic: 111 Message: 137

Hi Courtney,

How did you end up with such a bad NF? It seems it should be much lower with the INA-10386 in the receive line.

I'm close to done with my 902 transverter. I have most of the pieces mounted in an aluminum box. I'm working on the transmit amp which should give me 10 watts out.

I'm using the WD5AGO/W5LUA preamp design from 2007 CSVHF that uses an ATF36077/MGF61563. Also the KD6OZH phase-locked LO circuit with a 94.75 MHz crystal for the LO instead of the module Paul used in the original design. I also have a couple 900 MHz helical filters I'm using between the amps and the transverter board.

I will put together the 1296 circuit after I'm done with the 902. I also want to use a couple of additional 1296 boards I got as IF boards for 47.088 and 78.336 GHz systems.

73, Zack W9SZ

On Fri, Nov 5, 2010 at 12:55 PM, cduncan62 <cbduncan@...> wrote:

>
>
> Hi Bob, et al.
>
> I successfully got a 1296RSU working but at 50 mW and 20 dB noise figure,
> was unable to work anyone but myself and "locals" out to several hundred
> feet.
>
> It might work OK for mountaintopping or roving with a pretty good antenna.
> I haven't tried it myself, but that was the intent of the design so I think
> it probably would work. I vaguely remember others making reports to that
> effect on this or other lists.
>
> Since I'm building this up for home use, I've moved in the direction of QRO
> and LNA instead of driving around in the mountains. (Indeed, here in
> southern California, the nearby mountains are closed due to the Station Fire
> fourteen months ago!) Adding a preamp and power have both helped and I'm now
> working locals tens of miles away. There's still more to do before it's all
> working the way I want it and buttoned up. I'm learning quite a bit too
> about filters and IMD and linearity and how mixers work. It's great!
>
> The story about all this is on my website

>
> http://cbduncan.110mb.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU
>
> but I've made progress in the last several months that isn't reported there
> yet.
>
> I'm interested in the other bands too but not at high enough priority yet
> to get in on the current group buy. I understand that above 1296 it's pretty
> much all mountaintopping (or satellite).
>
> 73 de n5bf/6 Courtney
>
>
> --- In
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>,
> Bob Mantell <k4esa@...> wrote:
> >
> > I would be more interested in knowing how many folks finished up working
> units.
> >
> >
> > 73 de Bob,
> >
> > N4AN EM74qc
> >
> > Bob Mantell
> > k4esa@...
> >
> >
> > --- On Tue, 10/19/10, Vince <vince@...> wrote:
> >
> >
> > From: Vince <vince@...>
>
> > Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ
> baords and parts
> > To:
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>
> > Date: Tuesday, October 19, 2010, 1:52 PM
> >
> >
> > --- In
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>,
> James French <w8iss@> wrote:
> > > I am officially announcing that I have opened up purchases of boards
> and parts
> > > for this years group purchase of boards and parts for the W1GHZ
> transverters.
> >
> > ...

> >
> > > I have placed the order deadline as October 17th. I would like to have
> > > everything out by Thanksgiving if possible and the latest by the end of
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> > > November. That is my goal currently and everyone knows how that can
> > > change...:)
> >
> > Thanks for organizing this. I admit to being idly curious how many sold,
> thoughts like I wonder how many of us will be building a whatever GHz board
> "together" here on the yahoogroup. As the weather starts to cool, I can't
> be the only one looking forward to snowy weather and hot SMD soldering iron
> afternoons? Its going to be a fun winter, I think.
> >
> > 73 de Vince N9NFB EN53
> >
> >
> >
> > ------------------------------------
> >
> > Yahoo! Groups Links
> >
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>
>

138. Motorola amps for 900MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-18 16:02:35 UTC
From: Joshua M. Arritt
Topic: 138 Message: 138

Folks,

I've seen some information on mod-ing old analog cell amps for 900. I've come into a bunch of motorola STF2240, 2440, 2445, and similar amps, saved at the last minute from being tossed into the dumpster. Haven't cracked them open yet to see what device they're using on the finals, but seems to be similar to other 45-watt modular analog cell site amps on the outside (albeit, you only need a big monolithic heat sink to look similar!).

Anyone seen information on these amps? The great Google only offers some more for sale for me.

Seems other similar amps are limited in performance by the circulators inside.

73,
- Josh / KF4YLM

139. Re: [w1ghz-transverter-builders] Motorola amps for 900MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-18 17:16:04 UTC
From: James French
Topic: 138 Message: 139

On Thursday 18 November 2010 11:02:35 Joshua M. Arritt wrote:
> Folks,
>
> I've seen some information on mod-ing old analog cell amps for 900.
> I've come into a bunch of motorola STF2240, 2440, 2445, and similar
> amps, saved at the last minute from being tossed into the dumpster.
> Haven't cracked them open yet to see what device they're using on the
> finals, but seems to be similar to other 45-watt modular analog cell
> site amps on the outside (albeit, you only need a big monolithic heat
> sink to look similar!).
>
> Anyone seen information on these amps? The great Google only offers
> some more for sale for me.
>
> Seems other similar amps are limited in performance by the
> circulators inside.
>
>
> 73,
> - Josh / KF4YLM
>

More info can be found at:

http://www.ac6dd.com/amplifiers/smallmotorola/smallmotorola.htm

If you take out the circulator, most of these should work, but milage will
vary.

James W8ISS

140. Re: [w1ghz-transverter-builders] Motorola amps for 900MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-18 18:14:02 UTC
From: Scott
Topic: 138 Message: 140

I don't have any info on those amps. I modify amps such as the STF2520A and SGTF1038A. I have recently gotten a couple of STF2530A amplifiers. These are strange critters inside. I have all the datasheets for the transistors and figured I could get 150W out with about 70-250 mW of drive. So far, I'm getting about 20 Watts out of the amp, so I will have to investigate further.

If circulators (actually, they are usually isolators in these amps) are your problem and they are external to the PC board, just remove them and take the output from the PC board to an N Connector on the amp case (assuming you have build new a endplate for connecting RF In/Out, DC power and a PTT line).

Various amp internal views can be seen at:
http://www.ac6dd.com/amplifiers/smallmotorola/smallmotorola.htm

N0EDV

On 11-18-2010 16:02, Joshua M. Arritt wrote:
>
> Folks,
>
> I've seen some information on mod-ing old analog cell amps for 900.
> I've come into a bunch of motorola STF2240, 2440, 2445, and similar
> amps, saved at the last minute from being tossed into the dumpster.
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> finals, but seems to be similar to other 45-watt modular analog cell
> site amps on the outside (albeit, you only need a big monolithic heat
> sink to look similar!).
>
> Anyone seen information on these amps? The great Google only offers
> some more for sale for me.
>
> Seems other similar amps are limited in performance by the
> circulators inside.
>
> 73,
> - Josh / KF4YLM
>
>

--
Scott
http://corbenflyer.tripod.com/
Flying Corben Junior Ace - Building RV-4
Gotta Fly or Gonna Die

141. Re: [w1ghz-transverter-builders] Motorola amps for 900MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-11-18 23:14:59 UTC
From: Joshua M. Arritt
Topic: 138 Message: 141

Thanks to all who replied so far.

These amps are older than the ones described by AC6DD... finally cracked one open and found a 1988 datestamp on one of the board.

The devices are older too -- pre MRF, I think. Final is a bit cryptic on its designator: 33P44. Searches for datasheets have turned up dry thus far.

No circulators/isolators either... just an archaic mass of a directional coupler, with a reflected sample going back to the PA controller.

I have about 2 dozen of these things, so I guess it's time to start playing around and see if I can let the smoke out.

73,
- Josh / KF4YLM

On 11/18/2010 1:14 PM, Scott wrote:
>
>
> I don't have any info on those amps. I modify amps such as the
> STF2520A and SGTF1038A. I have recently gotten a couple of STF2530A
> amplifiers. These are strange critters inside. I have all the
> datasheets for the transistors and figured I could get 150W out with
> about 70-250 mW of drive. So far, I'm getting about 20 Watts out of
> the amp, so I will have to investigate further.
>
> If circulators (actually, they are usually isolators in these amps)
> are your problem and they are external to the PC board, just remove
> them and take the output from the PC board to an N Connector on the
> amp case (assuming you have build new a endplate for connecting RF
> In/Out, DC power and a PTT line).
>
> Various amp internal views can be seen at:
> http://www.ac6dd.com/amplifiers/smallmotorola/smallmotorola.htm
>
> N0EDV
>
> On 11-18-2010 16:02, Joshua M. Arritt wrote:
>>
>> Folks,
>>
>> I've seen some information on mod-ing old analog cell amps for 900.
>> I've come into a bunch of motorola STF2240, 2440, 2445, and similar

>> amps, saved at the last minute from being tossed into the dumpster.
>> Haven't cracked them open yet to see what device they're using on the
>> finals, but seems to be similar to other 45-watt modular analog cell
>> site amps on the outside (albeit, you only need a big monolithic heat
>> sink to look similar!).
>>
>> Anyone seen information on these amps? The great Google only offers
>> some more for sale for me.
>>
>> Seems other similar amps are limited in performance by the
>> circulators inside.
>>
>> 73,
>> - Josh / KF4YLM
>>
>
> --
> Scott
> http://corbenflyer.tripod.com/
> Flying Corben Junior Ace - Building RV-4
> Gotta Fly or Gonna Die
>
>
>

142. Re: Motorola amps for 900MHz

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-08 15:11:07 UTC
From: bob_wa6ufq
Topic: 138 Message: 142

I use one of the PA strips removed from a SGTF1038A in my 902 transverter. I can talk it up to 150 Watts out, but it takes a driver stage to be able to do that. I use a Toshiba SAU86 to drive the PA strip.

The SGTF1038A has two PA strips in it, so you get a spare too. They are less than $40 on Ebay.

BTW, the circulator is good to 904 MHz, so it works fine down at our end of the band.

So far there are four of us active on 902 MHz here in the Austin area, and a few more to come on line very soon.

If you haven't done so yet, check out this Yahoo 902 MHz SSB site:
http://groups.yahoo.com/group/902_MHz_SSB/

Bob WA6UFQ

--- In w1ghz-transverter-builders@yahoogroups.com, "Joshua M. Arritt" <jarritt@...> wrote:
>
> Folks,
>
> I've seen some information on mod-ing old analog cell amps for 900.
> I've come into a bunch of motorola STF2240, 2440, 2445, and similar
> amps, saved at the last minute from being tossed into the dumpster.
> Haven't cracked them open yet to see what device they're using on the
> finals, but seems to be similar to other 45-watt modular analog cell
> site amps on the outside (albeit, you only need a big monolithic heat
> sink to look similar!).
>
> Anyone seen information on these amps? The great Google only offers
> some more for sale for me.
>
> Seems other similar amps are limited in performance by the
> circulators inside.
>
>
> 73,
> - Josh / KF4YLM
>

143. Chip cap size vs. R

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-14 15:09:55 UTC
From: Joshua M. Arritt
Topic: 143 Message: 143

Folks,

Too cold to be outside working on stuff -- giving me some more bench time to work on these xverters.

A question came to mind last night. I have a bunch of 0603 and 0402 chip caps of the correct values for the xverter boards... I played around last night to see if they'd mechanically work on a blank 902 board. With patience, steady breathing, and a hot hatchet, I was able to get these tiny little dudes looking right spiffy between solder joints.

I'm wondering if these would *electrically* stand in place of the 1206-size caps commonly supplied with the "kits", or if they have significant enough change in their inherent resistance to warrant trouble.

Has anyone had experience with this so far? What are the thoughts on this list?

Waiting on some LOs to show up later this week to put the question to my own barrage of tests.

73,
- Josh / KF4YLM

144. 2304 pipe-cap filter questions

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-15 23:51:48 UTC
From: Michael Pfeuffer
Topic: 144 Message: 144

Hi all,

I'm finally getting around to building the 1296 & 2304 transverters. I found a nice cast aluminum project box in my parts pile that might work if the 2304 pipe-cap filter tuning screws don't stick up too much. Can anyone tell me how far out the extend when tuned?

Also, my local hardware store only had brass screws in 10-24, instead of 10-32. How sensitive is the tuning of these filters? I can see that you'd get finer tuning with the 10-32s, but don't know how much difference it would make. Any thoughts?

Thanks,
--Mike WQ5C

145. use of silver solder question

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-18 18:55:50 UTC
From: mike fowler
Topic: 111 Message: 145

I have received my transverter parts kit, from W8ISS, and I am preparing to assemble it. I have no previous experience with SMT assembly, thus the "dumb" question.
 I recall that I used silver solder, as advised, when installing chip caps, many years ago, in non (pre) SMT applications.
 Should silver solder be used on the chip caps (or other components), during the assembly of this xvtr?
 I attempted to do some research, and seem to find some inconsistencies in the answer to this question, so I am asking the experts.
 I would prefer not to use silver solder, in this application, due to it's higher melting point, but I don't wish to encounter metal migration problems, "down the road".
 Any advice would be greatly appreciated.
                         73 de Ron n4gjv

146. Re: [w1ghz-transverter-builders] use of silver solder question

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-18 19:23:21 UTC
From: Vince Mulhollon
Topic: 111 Message: 146

On Sat, Dec 18, 2010 at 10:55:50AM -0800, mike fowler wrote:
> ?I recall that I used silver solder, as advised, when installing chip caps, many years ago,?in non (pre) SMT applications.?
> ?Should silver solder be used on the chip caps (or other components), during the assembly of this xvtr?

Won't hurt. If you were an industrial scale assembler it could hurt your pocketbook.

Google for MLCC Multilayer ceramic capacitor and some terms like base metal vs precious metal termination systems.

The "old type" caps were made with a layer of silver then plate nickel then plate tin. The "new type" caps are made with a layer of copper or nickel, possibly a plate of nickel, then a plate of tin.

> ?I would prefer not to use silver solder, in this application, due to it's higher melting point, but I don't wish to encounter metal migration problems, "down the road".

They're made to take the heat. Completely different chemistry from, say, electrolytics.

73 de Vince N9NFB EN53ua

147. Re: [w1ghz-transverter-builders] use of silver solder question

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-18 19:25:20 UTC
From: Scott
Topic: 111 Message: 147
Attachments: 1 described; binary payloads are missing from this source WARC

I've used silver solder (2%) with SMD circuits before and I now use the Kester Low Residue solder. No problems with either. I still prefer the silver solder on RF transistors...no particular reason other than the joints look much cleaner and smoother.

N0EDV

On 12-18-2010 18:55, mike fowler wrote:
>
> I have received my transverter parts kit, from W8ISS, and I am
> preparing to assemble it. I have no previous experience with SMT
> assembly, thus the "dumb" question.
> I recall that I used silver solder, as advised, when installing chip
> caps, many years ago, in non (pre) SMT applications.
> Should silver solder be used on the chip caps (or other components),
> during the assembly of this xvtr?
> I attempted to do some research, and seem to find some
> inconsistencies in the answer to this question, so I am asking the
> experts.
> I would prefer not to use silver solder, in this application, due to
> it's higher melting point, but I don't wish to encounter metal
> migration problems, "down the road".
> Any advice would be greatly appreciated.
> 73 de Ron n4gjv
>
>
>

--

148. Re: [w1ghz-transverter-builders] use of silver solder question

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-18 20:43:40 UTC
From: Zack Widup
Topic: 111 Message: 148

I've used some .020" silver-bearing solder. The silver component is only 2%, so it melts just slightly higher than regular 60/40 or 56/44 solder.

I also use the regular solder in .020" size. I have a 25-watt Weller pencil soldering iron. I found that by replacing the tip with a screw that will fit the threads (I think 10-24) with a piece of bare #18 copper wire wrapped around the screw, it works nicely in soldering chip components on an ungrounded end. I usually need more heat if the end is grounded and the larger area of copper on the pc board conducts the heat away. In that case I put the regular MT-1 Weller tip back on and solder the grounded ends with that.

I haven't had any trouble soldering chip components with regular 60/40 solder.

73, Zack W9SZ

On Sat, Dec 18, 2010 at 12:55 PM, mike fowler <vtrbest@yahoo.com> wrote:

>
>
> I have received my transverter parts kit, from W8ISS, and I am preparing to
> assemble it. I have no previous experience with SMT assembly, thus the
> "dumb" question.
> I recall that I used silver solder, as advised, when installing chip caps,
> many years ago, in non (pre) SMT applications.
> Should silver solder be used on the chip caps (or other components),
> during the assembly of this xvtr?
> I attempted to do some research, and seem to find some inconsistencies in
> the answer to this question, so I am asking the experts.
> I would prefer not to use silver solder, in this application, due to it's
> higher melting point, but I don't wish to encounter metal migration
> problems, "down the road".
> Any advice would be greatly appreciated.
> 73 de Ron n4gjv
>
>
>

149. Re: [w1ghz-transverter-builders] use of silver solder question

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-18 23:11:09 UTC
From: Ethan Miller K8GU
Topic: 111 Message: 149

I use 0.015-inch 62/36/2 (that 2 is silver) for all my SMT work. Got
a bunch of spools at a RadioShack that was closing. #64-035E.

73,

--Ethan, K8GU.

On Saturday, December 18, 2010, Zack Widup <w9sz.zack@...> wrote:
>
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>
> I've used some .020" silver-bearing solder. The silver component is only 2%, so it melts
just slightly higher than regular 60/40 or 56/44 solder.
>
> I also use the regular solder in .020" size. I have a 25-watt Weller pencil soldering
iron. I found that by replacing the tip with a screw that will fit the threads (I think
10-24) with a piece of bare #18 copper wire wrapped around the screw, it works nicely in
soldering chip components on an ungrounded end. I usually need more heat if the end is
grounded and the larger area of copper on the pc board conducts the heat away. In that case
I put the regular MT-1 Weller tip back on and solder the grounded ends with that.
>
> I haven't had any trouble soldering chip components with regular 60/40 solder.
>
> 73, Zack W9SZ
>
>
> On Sat, Dec 18, 2010 at 12:55 PM, mike fowler <vtrbest@...> wrote:
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> I recall that I used silver solder, as advised, when installing chip caps, many years ago, in non (pre) SMT applications.
> Should silver solder be used on the chip caps (or other components), during the assembly of this xvtr?
> I attempted to do some research, and seem to find some inconsistencies in the answer to this question, so I am asking the experts.
> I would prefer not to use silver solder, in this application, due to it's higher melting point, but I don't wish to encounter metal migration problems, "down the road".
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> 73 de Ron n4gjv
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http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

150. use of silver solder question

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-19 06:34:34 UTC
From: mike fowler
Topic: 111 Message: 150

Many, many thanks to everyone who replied to my question about the use of silver solder during W1GHZ xvtr construction. I greatly appreciate each and every reply!

73 de Ron n4gjv

151. Re: 2304 pipe-cap filter questions

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-19 13:58:36 UTC
From: wq5c
Topic: 144 Message: 151

bump. Hasn't anyone built this board?

--Mike WQ5C

--- In w1ghz-transverter-builders@yahoogroups.com, Michael Pfeuffer <pfeufferm@...> wrote:
>
> Hi all,
>
> I'm finally getting around to building the 1296 & 2304 transverters. I
> found a nice cast aluminum project box in my parts pile that might work
> if the 2304 pipe-cap filter tuning screws don't stick up too much. Can
> anyone tell me how far out the extend when tuned?
>
> Also, my local hardware store only had brass screws in 10-24, instead of
> 10-32. How sensitive is the tuning of these filters? I can see that
> you'd get finer tuning with the 10-32s, but don't know how much
> difference it would make. Any thoughts?
>
> Thanks,
> --Mike WQ5C
>

152. Re: [w1ghz-transverter-builders] Re: 2304 pipe-cap filter questions

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-19 14:14:27 UTC
From: Scott
Topic: 144 Message: 152
Attachments: 1 described; binary payloads are missing from this source WARC

Huh? Oh...maybe nobody has addressed the size issue.

The tuning is rapid, so the finer thread screws might make it a bit easier to tune, but they still tune very fast, so you need to go real slow anyways. Use whatever you have, as long as they are brass (stainless=bad!).

To make the height of the filters as low as you can, you can tune the filters and then measure the height of the threads showing between the locking nut and the base of the screw head and then remove the screw from the filter and cut off slightly LESS than this amount from the screw. For example, if there is 1/4" of threads showing between the lock nut and screw head, shorten the screw by about 3/16". This will give you enough tuning range and get the head of the screw to within about 1/16" from the lock nut. Also, after you cut the screw off (in the screw cutter found on most wire splice crimping tools), gently file the end of the screw to make it flat, but try not to remove too much material or you may find it too short to hit your tuning point. You may want to have a nut screwed on way up to the head before cutting the screw so it can be used to "touch up" the threads after cutting by unscrewing the nut (and after filing the end of the screw).

N0EDV

On 12-19-2010 13:58, wq5c wrote:
>
> bump. Hasn't anyone built this board?
>
> --Mike WQ5C
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Michael
> Pfeuffer <pfeufferm@...> wrote:
> >
> > Hi all,
> >
> > I'm finally getting around to building the 1296 & 2304 transverters. I
> > found a nice cast aluminum project box in my parts pile that might work
> > if the 2304 pipe-cap filter tuning screws don't stick up too much. Can
> > anyone tell me how far out the extend when tuned?
> >
> > Also, my local hardware store only had brass screws in 10-24,
> instead of
> > 10-32. How sensitive is the tuning of these filters? I can see that
> > you'd get finer tuning with the 10-32s, but don't know how much

> > difference it would make. Any thoughts?
> >
> > Thanks,
> > --Mike WQ5C
> >
>
>

--

153. Re: [w1ghz-transverter-builders] Re: 2304 pipe-cap filter questions

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-19 14:57:05 UTC
From: Michael Pfeuffer
Topic: 144 Message: 153
Attachments: 1 described; binary payloads are missing from this source WARC

Hi Scott,

Thanks for the info. I really appreciate it.

73,
--Mike WQ5C

On 12/19/2010 8:14 AM, Scott wrote:
> Huh? Oh...maybe nobody has addressed the size issue.
>
> The tuning is rapid, so the finer thread screws might make it a bit
> easier to tune, but they still tune very fast, so you need to go real
> slow anyways. Use whatever you have, as long as they are brass
> (stainless=bad!).
>
> To make the height of the filters as low as you can, you can tune the
> filters and then measure the height of the threads showing between the
> locking nut and the base of the screw head and then remove the screw
> from the filter and cut off slightly LESS than this amount from the
> screw. For example, if there is 1/4" of threads showing between the
> lock nut and screw head, shorten the screw by about 3/16". This will
> give you enough tuning range and get the head of the screw to within
> about 1/16" from the lock nut. Also, after you cut the screw off (in
> the screw cutter found on most wire splice crimping tools), gently
> file the end of the screw to make it flat, but try not to remove too
> much material or you may find it too short to hit your tuning point.
> You may want to have a nut screwed on way up to the head before
> cutting the screw so it can be used to "touch up" the threads after
> cutting by unscrewing the nut (and after filing the end of the screw).
>
> N0EDV
>
> On 12-19-2010 13:58, wq5c wrote:
>>
>> bump. Hasn't anyone built this board?
>>
>> --Mike WQ5C
>>
>> --- In w1ghz-transverter-builders@yahoogroups.com
>> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Michael
>> Pfeuffer <pfeufferm@...> wrote:
>> >
>> > Hi all,
>> >
>> > I'm finally getting around to building the 1296 & 2304 transverters. I

>> > found a nice cast aluminum project box in my parts pile that might
>> work
>> > if the 2304 pipe-cap filter tuning screws don't stick up too much. Can
>> > anyone tell me how far out the extend when tuned?
>> >
>> > Also, my local hardware store only had brass screws in 10-24,
>> instead of
>> > 10-32. How sensitive is the tuning of these filters? I can see that
>> > you'd get finer tuning with the 10-32s, but don't know how much
>> > difference it would make. Any thoughts?
>> >
>> > Thanks,
>> > --Mike WQ5C
>> >
>>
>
> --

154. 10 GHz transverters down under

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-26 20:31:15 UTC
From: James French
Topic: 154 Message: 154

I just located a page for a few transverters that are being produced in Australia for 2.4 to 10 GHz. They have set them up for a 432 MHz IF input/output.

If I can get more information, would there be interest in these for the 10 and 5 GHz bands?

You can view the web page I saw these at at:
http://vk9na.com/Transverters.html

James W8ISS

155. Re: [w1ghz-transverter-builders] 10 GHz transverters down under

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-27 00:18:31 UTC
From: David Palm
Topic: 154 Message: 155

I would be interested in the 10 GHz, unless somebody here pipes in and tells me there's a cheaper way to get on 10 GHz. This looks pretty good to me.

73,

David W9HQ

On Sun, Dec 26, 2010 at 2:31 PM, James French <w8iss@wideopenwest.com>wrote:

>
>
> I just located a page for a few transverters that are being produced in
> Australia for 2.4 to 10 GHz. They have set them up for a 432 MHz IF
> input/output.
>
> If I can get more information, would there be interest in these for the 10
> and
> 5 GHz bands?
>
> You can view the web page I saw these at at:
> http://vk9na.com/Transverters.html
>
> James W8ISS
>
>

156. 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-27 16:48:10 UTC
From: Joshua M. Arritt
Topic: 156 Message: 156

Folks,

Built up my 2nd 902MHz boards over the weekend, and a couple of questions have come up.

What are we seeing for typical output power on the 756MHz LO?

My latest is only giving me about +3dBm. I see that the ADE5 mixer wants about +7dBm of LO drive. The RX sensitivity seems to be lower (by about 10db or so) than the previous unit I built.

Datasheet for the MAR-6 seems to indicate the typical power output of that device is +3dBm. I cannot recall what my 1st 756LO power was, and haven't ripped the box open to find out yet.

The xverter board has a spot for an additional LO gain stage -- has anyone tried adding this in? I see that some razor work might be needed on the board to make that happen, as the power lead for that gain stage is bonded to the ground plane on the opposite side of the board. What device would be a proper fit here? Or with only 4dB lacking, should I be looking back at the LO a little closer to see if I can squeeze more drive out of the thing?

In the interest of full disclosure, I did waver from the "proven" design a bit by using 0603 sized caps. Also used std value 330ohm resistor on the intermediate MAR-1 stage bias, as opposed to the 300 ohm value called for in the schematic. Wonder if that is a contributor to my low drive? Still new to MMICs and how they behave.

Similarly, used the INA-10386 in the RX stage and biased with a 56ohm chip as opposed to the 51ohm called for. Could this change account for additional "loss"? My 1st 902 rig uses the noisier SGA3586, and per the previous discussions on this forum, I'd expected at least slightly better noise performance with the INA... device.

On the combline filter, I used a series of three caps in parallel as opposed to two -- 18pf, 10pf, and 5pf -- the 10 and 5 put together to make the 15pf called for (didn't have any 15pf's left on the cap real box).

Another deviation I employed on this board (as well as my previous 902 and 1296 rig) was to use a larger TO-220 case 7805 regulator on the xtal, keeping the leads long and bending the device down on top of the xtal so as to thermally bond the two cases. In field tests with the other units, I found that the LOs took about 30 minutes to really stabilize. Adding this little mod cut the stabilization time down to about 5-7 minutes, and adding some foam insulation around the xtal/v-reg kept the unit more or less freq in spite of light winds on the proving

hilltop.

73,
- Josh / KF4YLM

157. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-27 17:06:24 UTC
From: Zack Widup
Topic: 156 Message: 157

Mine is putting out about +2 dBm at most. I was curious about this so I asked Paul W1GHZ. He said his was putting out +7 dBm with the MAR-6. I wondered about that. He thought maybe he had some mislabeled parts. They were definitely marked MAR-2. But +7 dBm is way beyond what the data sheet specs them at.

I had to add the additional MMIC in the LO chain on the transverter board to get +7 dBm to the mixer. I used a MAR-3 or MAR-4 and adjusted the input to the LO board to measure +7 dBm at the mixer port on the transverter board before installing the ADE-5 mixer. I think I did have to cut the board pattern a bit to make it work.

Note I'm using an additional circuit for the LO off the LO board. It's basically the KD6OZH PLL circuit running with a 94.75 MHz crystal. I can adjust the output from about -10 to +15 dBm from this oscillator.

The SGA-4586 has a lower noise figure than the INA-10386 but it appears to be unstable in some circuits. So I also used the INA-10386 in the receive chain. Changing the resistor from the recommended 51 ohm resistor to 56 ohms should make little if any difference. I wouldn't worry about that.

I'm using an external GaAs preamp - the WD5AGO/W5LUA preamp circuit from the 2007 CSVHFS presentation that uses the ATF36077/MGA61563 devices. I haven't had it measured but they are supposed to have a 0.3 dB NF at 902 MHz.

73, Zack W9SZ

On Mon, Dec 27, 2010 at 10:48 AM, Joshua M. Arritt <jarritt@...> wrote:

>
>
> Folks,
>
> Built up my 2nd 902MHz boards over the weekend, and a couple of
> questions have come up.
>
> What are we seeing for typical output power on the 756MHz LO?
>
> My latest is only giving me about +3dBm. I see that the ADE5 mixer
> wants about +7dBm of LO drive. The RX sensitivity seems to be lower
> (by about 10db or so) than the previous unit I built.
>
> Datasheet for the MAR-6 seems to indicate the typical power output
> of that device is +3dBm. I cannot recall what my 1st 756LO power was,
> and haven't ripped the box open to find out yet.
>
> The xverter board has a spot for an additional LO gain stage -- has

> anyone tried adding this in? I see that some razor work might be
> needed on the board to make that happen, as the power lead for that gain
> stage is bonded to the ground plane on the opposite side of the board.
> What device would be a proper fit here? Or with only 4dB lacking,
> should I be looking back at the LO a little closer to see if I can
> squeeze more drive out of the thing?
>
> In the interest of full disclosure, I did waver from the "proven"
> design a bit by using 0603 sized caps. Also used std value 330ohm
> resistor on the intermediate MAR-1 stage bias, as opposed to the 300 ohm
> value called for in the schematic. Wonder if that is a contributor to
> my low drive? Still new to MMICs and how they behave.
>
> Similarly, used the INA-10386 in the RX stage and biased with a
> 56ohm chip as opposed to the 51ohm called for. Could this change
> account for additional "loss"? My 1st 902 rig uses the noisier SGA3586,
> and per the previous discussions on this forum, I'd expected at least
> slightly better noise performance with the INA... device.
>
> On the combline filter, I used a series of three caps in parallel as
> opposed to two -- 18pf, 10pf, and 5pf -- the 10 and 5 put together to
> make the 15pf called for (didn't have any 15pf's left on the cap real box).
>
> Another deviation I employed on this board (as well as my previous
> 902 and 1296 rig) was to use a larger TO-220 case 7805 regulator on the
> xtal, keeping the leads long and bending the device down on top of the
> xtal so as to thermally bond the two cases. In field tests with the
> other units, I found that the LOs took about 30 minutes to really
> stabilize. Adding this little mod cut the stabilization time down to
> about 5-7 minutes, and adding some foam insulation around the xtal/v-reg
> kept the unit more or less freq in spite of light winds on the proving
> hilltop.
>
> 73,
> - Josh / KF4YLM
>
>
>

158. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-27 18:16:16 UTC
From: David Palm
Topic: 156 Message: 158

My 756 MHz LO came right up at 6.7 dBm output. The 3 dBm output power on the data sheet for the MAR-6 is for operation at 3.5 VDC. But Paul's design is running them at 8 VDC, so that's where you get the ~7 dBm. I verified that if I turned down the voltage on mine, the output power drops to the range on the datasheet.

I guess I'd see what else might be limiting your output power before I stuffed an additional part there.

73,

David W9HQ

On Mon, Dec 27, 2010 at 11:06 AM, Zack Widup <w9sz.zack@...> wrote:

>
>
> Mine is putting out about +2 dBm at most. I was curious about this so I
> asked Paul W1GHZ. He said his was putting out +7 dBm with the MAR-6. I
> wondered about that. He thought maybe he had some mislabeled parts. They
> were definitely marked MAR-2. But +7 dBm is way beyond what the data sheet
> specs them at.
>
>

159. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-27 20:26:04 UTC
From: Zack Widup
Topic: 156 Message: 159

It does not appear he is running the MMIC's at 8 volts, per the circuit diagram. The circuit diagram shows the +8v supply going through a 270 ohm resistor to the MAR-6 in the LO circuit.

Ideally, the MAR-6 is supposed to be powered at 3.5 volts @ 16 mA according to the data sheet. With an 8 volt supply, the value of resistor I calculate is 281 ohms. So the 270 ohms is the closest 10% value you can find to use here and should provide 3.5 volts at approximately 16.7 mA. With device tolerances, this is about as close as you can get to the recommended voltage and current conditions for the MAR-6.

73, Zack W9SZ

On Mon, Dec 27, 2010 at 12:16 PM, David Palm <thepalmhq@gmail.com> wrote:

>
>
> My 756 MHz LO came right up at 6.7 dBm output. The 3 dBm output power on
> the data sheet for the MAR-6 is for operation at 3.5 VDC. But Paul's design
> is running them at 8 VDC, so that's where you get the ~7 dBm. I verified
> that if I turned down the voltage on mine, the output power drops to the
> range on the datasheet.
>
> I guess I'd see what else might be limiting your output power before I
> stuffed an additional part there.
>
> 73,
>
> David W9HQ
>
>
>
>
> On Mon, Dec 27, 2010 at 11:06 AM, Zack Widup <w9sz.zack@...> wrote:
>
>>
>>
>> Mine is putting out about +2 dBm at most. I was curious about this so I
>> asked Paul W1GHZ. He said his was putting out +7 dBm with the MAR-6. I
>> wondered about that. He thought maybe he had some mislabeled parts. They
>> were definitely marked MAR-2. But +7 dBm is way beyond what the data sheet
>> specs them at.
>>
>>
>

160. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-27 20:42:07 UTC
From: David Palm
Topic: 156 Message: 160

>> It does not appear he is running the MMIC's at 8 volts, per the circuit
diagram. The circuit diagram shows the +8v supply going through a 270 ohm
resistor to the MAR-6 in the LO circuit. <<

Doh! ;o)

So you're right. There's a mystery here.

On Mon, Dec 27, 2010 at 2:26 PM, Zack Widup <w9sz.zack@...> wrote:

>
>
> It does not appear he is running the MMIC's at 8 volts, per the circuit
> diagram. The circuit diagram shows the +8v supply going through a 270 ohm
> resistor to the MAR-6 in the LO circuit.
>
> Ideally, the MAR-6 is supposed to be powered at 3.5 volts @ 16 mA according
> to the data sheet. With an 8 volt supply, the value of resistor I calculate
> is 281 ohms. So the 270 ohms is the closest 10% value you can find to use
> here and should provide 3.5 volts at approximately 16.7 mA. With device
> tolerances, this is about as close as you can get to the recommended voltage
> and current conditions for the MAR-6.
>
> 73, Zack W9SZ
>
>

161. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 03:01:44 UTC
From: Scott
Topic: 156 Message: 161
Attachments: 1 described; binary payloads are missing from this source WARC

The Minicircuits datasheets always list the voltage for the device that is at the output pin/supply voltage pin. You can use any Vcc voltage by changing the resistor value between Vcc and the DC Input power pin of the MMIC. Resistor value = (Vcc - (V)device)/ (I)device. Most, if not all, of their datasheets show a table of resistor values for various DV supply voltages.

Scott
N0EDV

On 12-27-2010 18:16, David Palm wrote:
>
> My 756 MHz LO came right up at 6.7 dBm output. The 3 dBm output power
> on the data sheet for the MAR-6 is for operation at 3.5 VDC. But
> Paul's design is running them at 8 VDC, so that's where you get the ~7
> dBm. I verified that if I turned down the voltage on mine, the output
> power drops to the range on the datasheet.
>
> I guess I'd see what else might be limiting your output power before I
> stuffed an additional part there.
>
> 73,
>
> David W9HQ
>
>
>
> On Mon, Dec 27, 2010 at 11:06 AM, Zack Widup <w9sz.zack@...
> <mailto:w9sz.zack@...>> wrote:
>
> Mine is putting out about +2 dBm at most. I was curious about this
> so I asked Paul W1GHZ. He said his was putting out +7 dBm with the
> MAR-6. I wondered about that. He thought maybe he had some
> mislabeled parts. They were definitely marked MAR-2. But +7 dBm is
> way beyond what the data sheet specs them at.
>
>

--

162. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 03:47:30 UTC
From: Zack Widup
Topic: 156 Message: 162

One thing I've never figured out is ... if you change the resistor value up and down, do the MMIC's draw a constant current so that the voltage on the output pin changes, or does the voltage on the device output pin stay the same and the current goes up and down? I suspect they draw something close to a constant current. I'll have to do an experiment or two with one I'm willing to sacrifice.

I didn't see absolute maximum ratings given for voltage on the output pin on the MAR-6. But if an MMIC is recommended at 3.5 volts, I don't think I'd be putting more than 5 volts on it.

73, Zack W9SZ

On Mon, Dec 27, 2010 at 9:01 PM, Scott <acepilot@...> wrote:

> The Minicircuits datasheets always list the voltage for the device that is
> at the output pin/supply voltage pin. You can use any Vcc voltage by
> changing the resistor value between Vcc and the DC Input power pin of the
> MMIC. Resistor value = (Vcc - (V)device)/ (I)device. Most, if not all, of
> their datasheets show a table of resistor values for various DV supply
> voltages.
>
> Scott
> N0EDV
>
>
>
>
>
>
> On 12-27-2010 18:16, David Palm wrote:
>
>
>
> My 756 MHz LO came right up at 6.7 dBm output. The 3 dBm output power on
> the data sheet for the MAR-6 is for operation at 3.5 VDC. But Paul's design
> is running them at 8 VDC, so that's where you get the ~7 dBm. I verified
> that if I turned down the voltage on mine, the output power drops to the
> range on the datasheet.
>
> I guess I'd see what else might be limiting your output power before I
> stuffed an additional part there.
>
> 73,
>
> David W9HQ

>
>
>
> On Mon, Dec 27, 2010 at 11:06 AM, Zack Widup <w9sz.zack@...> wrote:
>
>>
>>
>> Mine is putting out about +2 dBm at most. I was curious about this so I
>> asked Paul W1GHZ. He said his was putting out +7 dBm with the MAR-6. I
>> wondered about that. He thought maybe he had some mislabeled parts. They
>> were definitely marked MAR-2. But +7 dBm is way beyond what the data sheet
>> specs them at.
>>
>>
> --
>

163. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 11:53:37 UTC
From: Scott
Topic: 156 Message: 163
Attachments: 1 described; binary payloads are missing from this source WARC

On 12-27-2010 16:48, Joshua M. Arritt wrote:
>
> Folks,
>
> Built up my 2nd 902MHz boards over the weekend, and a couple of
> questions have come up.
>
> What are we seeing for typical output power on the 756MHz LO?
>
> My latest is only giving me about +3dBm. I see that the ADE5 mixer
> wants about +7dBm of LO drive. The RX sensitivity seems to be lower
> (by about 10db or so) than the previous unit I built.
>

One thing that helps get more power out is if you can place a coil between the device and its biasing resistor. I haven't looked at the board, but if you can take an exacto knife and cut out about 1/8" of the circuit trace, wind a small coil of 1/16" to 1/8" diameter (use a 1/16" or 1/8" drill bit as approriate as a former) and 3 or 4 turns. Enameled magnet wire is perfect for the job and just about any gauge that allows the coil to retain its shape. I typically use something around #22 or #24, but whatever you might have on hand is fine. It's just an RF choke, not tuned or anything :)

>

--

164. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 12:59:09 UTC
From: Scott
Topic: 156 Message: 164
Attachments: 2 described; binary payloads are missing from this source WARC

Forgot to mention...put the coil as close to the MMIC as you can. All you are doing is making a high impedance with the coil so the RF takes the "easiest" path, which will be through the coupling capacitor to the mixer.

N0EDV

On 12-28-2010 11:53, Scott wrote:
>
>
> On 12-27-2010 16:48, Joshua M. Arritt wrote:
>>
>> Folks,
>>
>> Built up my 2nd 902MHz boards over the weekend, and a couple of
>> questions have come up.
>>
>> What are we seeing for typical output power on the 756MHz LO?
>>
>> My latest is only giving me about +3dBm. I see that the ADE5 mixer
>> wants about +7dBm of LO drive. The RX sensitivity seems to be lower
>> (by about 10db or so) than the previous unit I built.
>>
>
> One thing that helps get more power out is if you can place a coil
> between the device and its biasing resistor. I haven't looked at the
> board, but if you can take an exacto knife and cut out about 1/8" of
> the circuit trace, wind a small coil of 1/16" to 1/8" diameter (use a
> 1/16" or 1/8" drill bit as approriate as a former) and 3 or 4 turns.
> Enameled magnet wire is perfect for the job and just about any gauge
> that allows the coil to retain its shape. I typically use something
> around #22 or #24, but whatever you might have on hand is fine. It's
> just an RF choke, not tuned or anything :)
>
>
>>
>
> --

--

165. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 14:40:39 UTC
From: Joshua M. Arritt
Topic: 156 Message: 165
Attachments: 2 described; binary payloads are missing from this source WARC

Stuck an MMIC in the LO gain spot on the xvrtr board last night.
Employed Scott's "coil" method on that device (blind squirrel finds a
nut!), discarding the printed trace and using the extra length of the
51-ohm thru-hole bias resistor lead to make a few windings before
landing the end of the lead at the MMIC. Took a cue from Zack and
removed the mixer and jumped the pads so as to measure the LO power from
the IF port. Tried an MAR3 at first with several R(bias) values but
couldn't get more than +4dBm. Next tried an ERA5. Behold, 7.5dBm!

This indeed fixed the sensitivity back up to a more reasonable figure --
I can still discern my sig gen's -110dBm CW carrier on the IF rig now,
where as before I was losing it in the mud at about -90dBm.

Thanks to those who've responded.

73,

- Josh / KF4YLM

On 12/28/2010 7:59 AM, Scott wrote:
> Forgot to mention...put the coil as close to the MMIC as you can. All
> you are doing is making a high impedance with the coil so the RF takes
> the "easiest" path, which will be through the coupling capacitor to
> the mixer.
>
> N0EDV
>
> On 12-28-2010 11:53, Scott wrote:
>>
>>
>> On 12-27-2010 16:48, Joshua M. Arritt wrote:
>>>
>>> Folks,
>>>
>>> Built up my 2nd 902MHz boards over the weekend, and a couple of
>>> questions have come up.
>>>
>>> What are we seeing for typical output power on the 756MHz LO?
>>>
>>> My latest is only giving me about +3dBm. I see that the ADE5 mixer
>>> wants about +7dBm of LO drive. The RX sensitivity seems to be lower
>>> (by about 10db or so) than the previous unit I built.
>>>
>>
>> One thing that helps get more power out is if you can place a coil

>> between the device and its biasing resistor. I haven't looked at the
>> board, but if you can take an exacto knife and cut out about 1/8" of
>> the circuit trace, wind a small coil of 1/16" to 1/8" diameter (use a
>> 1/16" or 1/8" drill bit as approriate as a former) and 3 or 4 turns.
>> Enameled magnet wire is perfect for the job and just about any gauge
>> that allows the coil to retain its shape. I typically use something
>> around #22 or #24, but whatever you might have on hand is fine. It's
>> just an RF choke, not tuned or anything :)
>>
>>
>>>
>>
>> --
>
> --

166. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 14:44:19 UTC
From: Joshua M. Arritt
Topic: 156 Message: 166

On 12/28/2010 9:40 AM, Joshua M. Arritt wrote:
>
>
> Employed Scott's "coil" method on that device (blind squirrel finds
> a nut!),
(....meaning that I stumbled blindly into the choke method and was
pleasantly surprised to find it being suggested by others.)

- J

167. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 15:48:43 UTC
From: Vince Mulhollon
Topic: 156 Message: 167

On Mon, Dec 27, 2010 at 09:47:30PM -0600, Zack Widup wrote:
> One thing I've never figured out is ... if you change the resistor value up
> and down, do the MMIC's draw a constant current so that the voltage on the
> output pin changes, or does the voltage on the device output pin stay the
> same and the current goes up and down? I suspect they draw something close
> to a constant current. I'll have to do an experiment or two with one I'm
> willing to sacrifice.

Google for minicircuits app note AN-60-010 "Biasing MMIC Amplifiers"

Page 4 table 1 third column. Delta V divided by delta I equals
theoretical resistence at the operating point in ohms.

So MMICs act mostly like constant voltage drop with a series
"couple ohm" resistor. Lets call it five ohms plus or minus about
fifty percent.

Note that this is non-linear. one volt across a "5 ohm" MMIC
does not equal what you think. They usually only spec it at
recommended operating current.

If you pull the MAR-6+ data sheet you'll see at 16mA it varies
about 8.4 mV per mA or in other words it acts about like a
8.4 ohm resistor, sorta.

A blue LED in series with a 8.2 ohm resistor would be vaguely
equivalent to a MAR-6. At one point I made simple little testers
out of LEDs and resistors and clipleads to see if my bias circuit
was even vaguely close to correct, before I'd solder in an actual
MMIC. Some MMICs have an operating current point WAY above what
a typical LED can survive or have wierd device voltage drops, its
just good luck that a blue LED and a common value resistor is such
a good match to a MAR-6.

73 de Vince N9NFB EN53ua

168. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-28 22:48:03 UTC
From: Scott
Topic: 156 Message: 168

On 12-28-2010 14:40, Joshua M. Arritt wrote:
>
>
> Stuck an MMIC in the LO gain spot on the xvrtr board last night.
> Employed Scott's "coil" method on that device (blind squirrel finds a
> nut!), discarding the printed trace and using the extra length of the
> 51-ohm thru-hole bias resistor lead to make a few windings before
> landing the end of the lead at the MMIC.

I wasn't sure if those biasing resistors were surface mount or
through-hole. Since they appear to be through-hole types, using the
lead (on the MMIC end) of the resistor is A-OK as long as you leave a
bit of space between turns as there is no insulation on said lead :) So
where's my check? JUST KIDDING!! Glad you got things improved...

Scott
N0EDV
> Took a cue from Zack and removed the mixer and jumped the pads so as
> to measure the LO power from the IF port. Tried an MAR3 at first with
> several R(bias) values but couldn't get more than +4dBm. Next tried
> an ERA5. Behold, 7.5dBm!
>
> This indeed fixed the sensitivity back up to a more reasonable figure
> -- I can still discern my sig gen's -110dBm CW carrier on the IF rig
> now, where as before I was losing it in the mud at about -90dBm.
>
> Thanks to those who've responded.
>
>
> 73,
>
> - Josh / KF4YLM
>

169. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-29 03:12:53 UTC
From: Zack Widup
Topic: 156 Message: 169

My 903 board has an RF choke on the pc board. There is a thin etched line from the MMIC output pin to a pad near the edge of the board. The pad has a larger pad next to it with a thru-hole to an ungrounded pad on the other side of the board. There is just enough space between the two pads for a 1206 case resistor. None of the leads on this line are grounded anywhere.

Maybe I have a newer version board?

73, Zack W9SZ

On 12/28/10, Scott <acepilot@...> wrote:
>
>
> On 12-28-2010 14:40, Joshua M. Arritt wrote:
>>
>>
>> Stuck an MMIC in the LO gain spot on the xvrtr board last night.
>> Employed Scott's "coil" method on that device (blind squirrel finds a
>> nut!), discarding the printed trace and using the extra length of the
>> 51-ohm thru-hole bias resistor lead to make a few windings before
>> landing the end of the lead at the MMIC.
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> I wasn't sure if those biasing resistors were surface mount or
> through-hole. Since they appear to be through-hole types, using the
> lead (on the MMIC end) of the resistor is A-OK as long as you leave a
> bit of space between turns as there is no insulation on said lead :) So
> where's my check? JUST KIDDING!! Glad you got things improved...
>
> Scott
> N0EDV
>> Took a cue from Zack and removed the mixer and jumped the pads so as
>> to measure the LO power from the IF port. Tried an MAR3 at first with
>> several R(bias) values but couldn't get more than +4dBm. Next tried
>> an ERA5. Behold, 7.5dBm!
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>> This indeed fixed the sensitivity back up to a more reasonable figure
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>> now, where as before I was losing it in the mud at about -90dBm.
>>
>> Thanks to those who've responded.
>>
>>
>> 73,
>>
>> - Josh / KF4YLM

>>
>
>

170. Re: [w1ghz-transverter-builders] 756 LO output / 900MHz sensitivity

Yahoo group: w1ghz-transverter-builders
Date: 2010-12-29 03:17:02 UTC
From: Zack Widup
Topic: 156 Message: 170

My mistake; that's the 1296 board. The 903 board has a tiny thin line
which isn't long enough to be a choke at 903 MHz to a thru-hole for a
leaded resistor on the bottom of the board that goes to another pad.
But still, nothing on these lines is grounded.

Zack W9SZ

On 12/28/10, Zack Widup <w9sz.zack@...> wrote:
> My 903 board has an RF choke on the pc board. There is a thin etched
> line from the MMIC output pin to a pad near the edge of the board. The
> pad has a larger pad next to it with a thru-hole to an ungrounded pad
> on the other side of the board. There is just enough space between the
> two pads for a 1206 case resistor. None of the leads on this line are
> grounded anywhere.
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> Maybe I have a newer version board?
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> 73, Zack W9SZ
>
>
> On 12/28/10, Scott <acepilot@...> wrote:
>>
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>> On 12-28-2010 14:40, Joshua M. Arritt wrote:
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>>>
>>> Stuck an MMIC in the LO gain spot on the xvrtr board last night.
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>> through-hole. Since they appear to be through-hole types, using the
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>>> several R(bias) values but couldn't get more than +4dBm. Next tried
>>> an ERA5. Behold, 7.5dBm!
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>>> This indeed fixed the sensitivity back up to a more reasonable figure
>>> -- I can still discern my sig gen's -110dBm CW carrier on the IF rig
>>> now, where as before I was losing it in the mud at about -90dBm.
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>>> Thanks to those who've responded.
>>>
>>>
>>> 73,
>>>
>>> - Josh / KF4YLM
>>>
>>
>>
>

171. W1GHZ 1296 MHz rover transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-27 06:26:41 UTC
From: adam
Topic: 171 Message: 171

http://croatia-microwave.blogspot.com/2010/12/w1ghz-rover-transverter-for-1296-mhz.html

172. caps

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 03:42:05 UTC
From: mcmurraygrouch57
Topic: 172 Message: 172

digikey does'nt have half the caps any suggestions.
ron

173. Re: [w1ghz-transverter-builders] caps

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 03:53:55 UTC
From: Charles Seevers
Topic: 172 Message: 173

On 1/27/2011 7:42 PM, mcmurraygrouch57 wrote:

digikey does'nt have half the caps any suggestions.
ron

http://cgi.ebay.com/50value-SMD-0805-Capacitor-1000pcs-10-Assortment-Kit-/220713837185?pt=LH_DefaultDomain_0&hash=item336391e281

174. Re: [w1ghz-transverter-builders] caps

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 04:52:16 UTC
From: Zack Widup
Topic: 172 Message: 174

Another of my favorite eBay sellers is NightFire ceramics (nfceramics). I have no relationship with them other than I've bought many many of their surface-mount parts kits. I probably have enough to last me a while now!

73, Zack W9SZ

On 1/27/11, Charles Seevers <w6qwn@...> wrote:
>
>
> On 1/27/2011 7:42 PM, mcmurraygrouch57 wrote:
>>
>>
>>
>> digikey does'nt have half the caps any suggestions.
>> ron
>>
>
> http://cgi.ebay.com/50value-SMD-0805-Capacitor-1000pcs-10-Assortment-Kit-/220713837185?pt=LH_DefaultDomain_0&hash=item336391e281
>
>

175. Re: [w1ghz-transverter-builders] caps

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 11:56:54 UTC
From: Scott
Topic: 172 Message: 175
Attachments: 1 described; binary payloads are missing from this source WARC

Really? I bought all of mine there about a year ago. If you are
searching by part numbers listed in the bill of materials, that may be
true. DigiKey has a habit of "changing" part numbers over time.

You can start here for your search (just highlight the package size you
want and the value and click on "Apply Filters":

http://search.digikey.com/scripts/DkSearch/dksus.dll?Cat=131736&k=capacitor

Scott
N0EDV

On 1-28-2011 03:42, mcmurraygrouch57 wrote:
>
> digikey does'nt have half the caps any suggestions.
> ron
>
>

--

176. Re: [w1ghz-transverter-builders] caps

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 12:06:17 UTC
From: Scott
Topic: 172 Message: 176
Attachments: 2 described; binary payloads are missing from this source WARC

Oops. Most of the ones found in the link I gave have minimum quantities
of 3000!

Try this link instead:
http://search.digikey.com/scripts/DkSearch/dksus.dll?Cat=131083&k=capacitor

N0EDV

On 1-28-2011 11:56, Scott wrote:
> Really? I bought all of mine there about a year ago. If you are
> searching by part numbers listed in the bill of materials, that may be
> true. DigiKey has a habit of "changing" part numbers over time.
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> you want and the value and click on "Apply Filters":
>
> http://search.digikey.com/scripts/DkSearch/dksus.dll?Cat=131736&k=capacitor
>
> Scott
> N0EDV
>
> On 1-28-2011 03:42, mcmurraygrouch57 wrote:
>>
>> digikey does'nt have half the caps any suggestions.
>> ron
>>
>
> --

--

177. caps 2

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 13:05:55 UTC
From: mcmurraygrouch57
Topic: 177 Message: 177

how important is it that you use low esr caps.
ron

178. Re: [w1ghz-transverter-builders] caps

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 13:18:03 UTC
From: Joshua M. Arritt
Topic: 172 Message: 178

Alas, if you're in the experimentation mood, *slight* deviations from
the spec are probably OK -- for instance, move down one pkg size, or
substitute a 0.12uf for the 0.1uf chip (which I had to do to get small
qty from digikey).

You should be able to source all these parts from Digikey, Jameco, or
other similar vendors with a little creativity.

73,
- Josh / KF4YLM

On 1/28/2011 7:06 AM, Scott wrote:
> Oops. Most of the ones found in the link I gave have minimum
> quantities of 3000!
>
> Try this link instead:
> http://search.digikey.com/scripts/DkSearch/dksus.dll?Cat=131083&k=capacitor
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> N0EDV
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>
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> On 1-28-2011 11:56, Scott wrote:
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>> you want and the value and click on "Apply Filters":
>>
>> http://search.digikey.com/scripts/DkSearch/dksus.dll?Cat=131736&k=capacitor
>>
>> Scott
>> N0EDV
>>
>> On 1-28-2011 03:42, mcmurraygrouch57 wrote:
>>>
>>> digikey does'nt have half the caps any suggestions.
>>> ron
>>>
>>
>> --
>
> --

179. Re: [w1ghz-transverter-builders] caps

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 14:12:06 UTC
From: Zack Widup
Topic: 172 Message: 179

For bypass caps like o.01 or 0.1 uF, the value isn't extremely critical. I remember on some of my older transverters the circuit listed 10 pF chips for bypass and DC blocking and I had a large quantity of 11 pF chips. I used them and they were fine.

For the filters you need to use the values that will add up to exactly the capacitance needed. I think one filter needs 60 pF total and you could use a 27 and a 33 pF in parallel, or two 30 pF's if you have them.

73, Zack W9SZ

On 1/28/11, Joshua M. Arritt <jarritt@...> wrote:
> Alas, if you're in the experimentation mood, *slight* deviations from
> the spec are probably OK -- for instance, move down one pkg size, or
> substitute a 0.12uf for the 0.1uf chip (which I had to do to get small
> qty from digikey).
>
> You should be able to source all these parts from Digikey, Jameco, or
> other similar vendors with a little creativity.
>
> 73,
> - Josh / KF4YLM
>
>
>
> On 1/28/2011 7:06 AM, Scott wrote:
>> Oops. Most of the ones found in the link I gave have minimum
>> quantities of 3000!
>>
>> Try this link instead:
>> http://search.digikey.com/scripts/DkSearch/dksus.dll?Cat=131083&k=capacitor
>>
>> N0EDV
>>
>>
>>
>> On 1-28-2011 11:56, Scott wrote:
>>> Really? I bought all of mine there about a year ago. If you are
>>> searching by part numbers listed in the bill of materials, that may
>>> be true. DigiKey has a habit of "changing" part numbers over time.
>>>
>>> You can start here for your search (just highlight the package size
>>> you want and the value and click on "Apply Filters":
>>>
>>> http://search.digikey.com/scripts/DkSearch/dksus.dll?Cat=131736&k=capacitor

>>>
>>> Scott
>>> N0EDV
>>>
>>> On 1-28-2011 03:42, mcmurraygrouch57 wrote:
>>>>
>>>> digikey does'nt have half the caps any suggestions.
>>>> ron
>>>>
>>>
>>> --
>>
>> --
>
>

180. Re: [w1ghz-transverter-builders] caps 2

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 14:15:54 UTC
From: Zack Widup
Topic: 177 Message: 180

Not very. Any modern cap in the right value and case size should work in these circuits.

I had a discussion with W1VT some time ago about using chip caps on microwave frequencies. He said that the ordinary cheap chip caps made 20 years ago might not do, but anything made recently should work. ATC porcelains are ideal in some circuits but the cheaper ones will work at least up to 3456 MHz from my experience.

73, Zack W9SZ

On 1/28/11, mcmurraygrouch57 <hamshack@...> wrote:
> how important is it that you use low esr caps.
> ron
>
>

181. Re: [w1ghz-transverter-builders] caps ATC 100B's

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 17:43:21 UTC
From: Mark Mcnutt
Topic: 172 Message: 181

I have bought Low ESR caps and NPO/COG 0805/0603 cap kits from ebay with positive results. Some come with handy enclosures but generally just cut tape sections like from DigiKey or Mouser. The ATC 100B Series are nice porcelains with
Q's >10K @1E6 and can handle more than 500WVDC. Although they are more expensive, they are very easy to handle due to their form factor, great for those without the steadiest of hands.

Mark
KB3PGM

"Good judgment comes from experience, experience which usually was the result of poor judgment."-Voytek Kurtyka

-

182. Re: caps 2

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-28 23:33:46 UTC
From: mcmurraygrouch57
Topic: 177 Message: 182

thanks this makes it easier to find them.
ron

183. Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-29 21:46:54 UTC
From: cduncan62
Topic: 111 Message: 183

Hi Zack,

In

http://croatia-microwave.blogspot.com/2010/12/w1ghz-rover-transverter-for-1296-mhz.html

9A4QV said:

"Loos in the splitter 6dB, filter 7dB, mixer 6db, connectors 1 dB, coaxial switch 1 dB give us a total of 21dB. The only active amplifier on the receiving side is INA10386 delivering same or maybe a few dB higher gain on this frequency."

That may be why I'm getting such a poor noise figure on the transverter board itself. The part itself has good NF but all that loss before and after eats it up.

I e-mailed Paul about this sometime last year and he replied that it should do better but he hadn't measured it himself and there wasn't much receive gain in the circuit, so maybe what I was seeing was reasonable.

That response doesn't conflict with what I just said.

Anyway, with the DEMi preamp in front of it, it works fine (system NF < 1 dB), and that will be "standard" in the boxed-up configuration that I'm working on now, so practically speaking I should be OK.

As I finish up the final assembly of everything I'm going to do some testing and get all the frequencies and gains and noise figures and higher order intermod products and sequencing waveforms and things quantified in a spreadsheet for my own education, so I'll kind of know what the issues are when I go and design my own circuits one of these days....

Do you have your 1296 board working yet?

73, Courtney, n5bf/6

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> Hi Courtney,
>
> How did you end up with such a bad NF? It seems it should be much lower with
> the INA-10386 in the receive line.
>
> I'm close to done with my 902 transverter. I have most of the pieces mounted
> in an aluminum box. I'm working on the transmit amp which should give me 10
> watts out.
>
> I'm using the WD5AGO/W5LUA preamp design from 2007 CSVHF that uses an
> ATF36077/MGF61563. Also the KD6OZH phase-locked LO circuit with a 94.75 MHz
> crystal for the LO instead of the module Paul used in the original design. I

> also have a couple 900 MHz helical filters I'm using between the amps and
> the transverter board.
>
> I will put together the 1296 circuit after I'm done with the 902. I also
> want to use a couple of additional 1296 boards I got as IF boards for 47.088
> and 78.336 GHz systems.
>
> 73, Zack W9SZ
>
>
> On Fri, Nov 5, 2010 at 12:55 PM, cduncan62 <cbduncan@...> wrote:
>
> >
> >
> > Hi Bob, et al.
> >
> > I successfully got a 1296RSU working but at 50 mW and 20 dB noise figure,
> > was unable to work anyone but myself and "locals" out to several hundred
> > feet.
> >
> > It might work OK for mountaintopping or roving with a pretty good antenna.
> > I haven't tried it myself, but that was the intent of the design so I think
> > it probably would work. I vaguely remember others making reports to that
> > effect on this or other lists.
> >
> > Since I'm building this up for home use, I've moved in the direction of QRO
> > and LNA instead of driving around in the mountains. (Indeed, here in
> > southern California, the nearby mountains are closed due to the Station Fire
> > fourteen months ago!) Adding a preamp and power have both helped and I'm now
> > working locals tens of miles away. There's still more to do before it's all
> > working the way I want it and buttoned up. I'm learning quite a bit too
> > about filters and IMD and linearity and how mixers work. It's great!
> >
> > The story about all this is on my website
> >
> > http://cbduncan.110mb.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU
> >
> > but I've made progress in the last several months that isn't reported there
> > yet.
> >
> > I'm interested in the other bands too but not at high enough priority yet
> > to get in on the current group buy. I understand that above 1296 it's pretty
> > much all mountaintopping (or satellite).
> >
> > 73 de n5bf/6 Courtney
> >
> >
> > --- In
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>,
> > Bob Mantell <k4esa@> wrote:

> > >
> > > I would be more interested in knowing how many folks finished up working
> > units.
> > >
> > >
> > > 73 de Bob,
> > >
> > > N4AN EM74qc
> > >
> > > Bob Mantell
> > > k4esa@
> > >
> > >
> > > --- On Tue, 10/19/10, Vince <vince@> wrote:
> > >
> > >
> > > From: Vince <vince@>
> >
> > > Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ
> > baords and parts
> > > To:
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>
> > > Date: Tuesday, October 19, 2010, 1:52 PM
> > >
> > >
> > > --- In
w1ghz-transverter-builders@yahoogroups.com<w1ghz-transverter-builders%40yahoogroups.com>,
> > James French <w8iss@> wrote:
> > > > I am officially announcing that I have opened up purchases of boards
> > and parts
> > > > for this years group purchase of boards and parts for the W1GHZ
> > transverters.
> > >
> > > ...
> > >
> > > > I have placed the order deadline as October 17th. I would like to have
> > > > everything out by Thanksgiving if possible and the latest by the end of
> >
> > > > November. That is my goal currently and everyone knows how that can
> > > > change...:)
> > >
> > > Thanks for organizing this. I admit to being idly curious how many sold,
> > thoughts like I wonder how many of us will be building a whatever GHz board
> > "together" here on the yahoogroup. As the weather starts to cool, I can't
> > be the only one looking forward to snowy weather and hot SMD soldering iron
> > afternoons? Its going to be a fun winter, I think.
> > >
> > > 73 de Vince N9NFB EN53
> > >
> > >

> > >
> > > ------------------------------------
> > >
> > > Yahoo! Groups Links
> > >
> >
> >
> >
>

184. Re: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-29 22:58:57 UTC
From: Charles Seevers
Topic: 111 Message: 184

As 9A4QV points out, I found that many loses are eating up all the gain in the devices. My output on TX ended up at +5 dBM. I tried adding a 1 watt amp and found you need more than 50 dB of Isolation in your antenna relay or the feedback through the receive device , even with it powered off is enough to end up with a big oscillator. I'm giving up on trying to use the 1296RSU as a transverter and just use it as transmit up converter only and build up a separate receive converter. Charles W6QWN

On 1/29/2011 1:46 PM, cduncan62 wrote:

Hi Zack,

In

http://croatia-microwave.blogspot.com/2010/12/w1ghz-rover-transverter-for-1296-mhz.html

9A4QV said:

"Loos in the splitter 6dB, filter 7dB, mixer 6db, connectors 1 dB, coaxial switch 1 dB give us a total of 21dB. The only active amplifier on the receiving side is INA10386 delivering same or maybe a few dB higher gain on this frequency."

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I e-mailed Paul about this sometime last year and he replied that it should do better but he hadn't measured it himself and there wasn't much receive gain in the circuit, so maybe what I was seeing was reasonable.

That response doesn't conflict with what I just said.

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73, Courtney, n5bf/6

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> I'm close to done with my 902 transverter. I have most of the pieces mounted
> in an aluminum box. I'm working on the transmit amp which should give me 10
> watts out.
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> ATF36077/MGF61563. Also the KD6OZH phase-locked LO circuit with a 94.75 MHz
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>
> I will put together the 1296 circuit after I'm done with the 902. I also
> want to use a couple of additional 1296 boards I got as IF boards for 47.088
> and 78.336 GHz systems.
>
> 73, Zack W9SZ
>
>
> On Fri, Nov 5, 2010 at 12:55 PM, cduncan62 wrote:
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> >
> > Hi Bob, et al.
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> > I successfully got a 1296RSU working but at 50 mW and 20 dB noise figure,
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> > feet.
> >
> > It might work OK for mountaintopping or roving with a pretty good antenna.
> > I haven't tried it myself, but that was the intent of the design so I think
> > it probably would work. I vaguely remember others making reports to that
> > effect on this or other lists.
> >
> > Since I'm building this up for home use, I've moved in the direction of QRO
> > and LNA instead of driving around in the mountains. (Indeed, here in
> > southern California, the nearby mountains are closed due to the Station Fire
> > fourteen months ago!) Adding a preamp and power have both helped and I'm now
> > working locals tens of miles away. There's still more to do before it's all
> > working the way I want it and buttoned up. I'm learning quite a bit too
> > about filters and IMD and linearity and how mixers work. It's great!
> >
> > The story about all this is on my website
> >
> > http://cbduncan.110mb.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU
> >
> > but I've made progress in the last several months that isn't reported there
> > yet.
> >

> > I'm interested in the other bands too but not at high enough priority yet
> > to get in on the current group buy. I understand that above 1296 it's pretty
> > much all mountaintopping (or satellite).
> >
> > 73 de n5bf/6 Courtney
> >
> >
> > --- In w1ghz-transverter-builders@yahoogroups.com,
> > Bob Mantell wrote:
> > >
> > > I would be more interested in knowing how many folks finished up working
> > units.
> > >
> > >
> > > 73 de Bob,
> > >
> > > N4AN EM74qc
> > >
> > > Bob Mantell
> > > k4esa@
> > >
> > >
> > > --- On Tue, 10/19/10, Vince wrote:
> > >
> > >
> > > From: Vince
> >
> > > Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ
> > baords and parts
> > > To: w1ghz-transverter-builders@yahoogroups.com
> > > Date: Tuesday, October 19, 2010, 1:52 PM
> > >
> > >
> > > --- In w1ghz-transverter-builders@yahoogroups.com,
> > James French wrote:
> > > > I am officially announcing that I have opened up purchases of boards
> > and parts
> > > > for this years group purchase of boards and parts for the W1GHZ
> > transverters.
> > >
> > > ...
> > >
> > > > I have placed the order deadline as October 17th. I would like to have
> > > > everything out by Thanksgiving if possible and the latest by the end of
> > >
> > > > November. That is my goal currently and everyone knows how that can
> > > > change...:)
> > >
> > > Thanks for organizing this. I admit to being idly curious how many sold,
> > thoughts like I wonder how many of us will be building a whatever GHz board

> > "together" here on the yahoogroup. As the weather starts to cool, I can't
> > be the only one looking forward to snowy weather and hot SMD soldering iron
> > afternoons? Its going to be a fun winter, I think.
> > >
> > > 73 de Vince N9NFB EN53
> > >
> > >
> > >
> > > ------------------------------------
> > >
> > > Yahoo! Groups Links
> > >
> >
> >
> >
>

185. Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-30 07:45:23 UTC
From: adam
Topic: 111 Message: 185

Hi guys,

after all, I measured the loos in the filter (1296MHz - the very first version). Actually I duplicate just the filter on the FR4 1.6mm and it comes out that the I.L. on the 1296 MHz is 4dB.
Thr RSU versions has one pole more in the filter, so the loos should be higher.
I will publish soon the filter measurements on my blog with all data.

Another problem is resistor splitter. It is simple but the loos is 6db (if ideal). Three port resistive splitter terminated with the 50 ohms should use two 18 ohms resistors according to the calculations. For some reason, Paul is using other values (probable to increase the isolation between the ports), so I think that we loose more than 6dB just on this simple splitter.
I overcome this problem simply by replacing the resistors with the PIN diodes,the power for the control can be easily done from the ground pcb side. It helps a lot, big improvement on the rx side is clearly seen. With the PIN diodes switch you can save some 6dB.

Well, to reduce the overall costs, Paul is using 0.062" boards. The vias are just enough for mmics that he is using in this project. If you try to use some other low noise MMICS on the rx side, most probably your amplifier will ended as the oscillator. Some data sheets recomended the 0.031" boards as a maximum. Paul is using up to 3 vias for each ground pin. If you experience the oscillations, maybe you can drill some more holes for C wire vias. Together with the PIN diods, this can maybe stop the oscillations.

At the end, the N.F. is mainly depending on the first component you are using in the rx chain. One preamp stage will helps a lot. Adding an extra bandpass filter between this two rx stages will helps even more..

Adam

186. Re: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2011-01-30 17:39:10 UTC
From: Charles Seevers
Topic: 111 Message: 186

On 1/29/2011 11:45 PM, adam wrote:

Hi guys,

after all, I measured the loos in the filter (1296MHz - the very first version). Actually I duplicate just the filter on the FR4 1.6mm and it comes out that the I.L. on the 1296 MHz is 4dB.
Thr RSU versions has one pole more in the filter, so the loos should be higher.
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Another problem is resistor splitter. It is simple but the loos is 6db (if ideal). Three port resistive splitter terminated with the 50 ohms should use two 18 ohms resistors according to the calculations. For some reason, Paul is using other values (probable to increase the isolation between the ports), so I think that we loose more than 6dB just on this simple splitter.
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At the end, the N.F. is mainly depending on the first component you are using in the rx chain. One preamp stage will helps a lot. Adding an extra bandpass filter between this two rx stages will helps even more..

Adam

The Receive input stage has no power on it during transmit so it is just a lossy coupling during transmit. The pin diode approach is interesting.

187. PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-01 20:27:21 UTC
From: thepalmhq
Topic: 187 Message: 187

Per a conversation with Adam, 9A4QV, I have posted a proposed schematic, under Photos section and also under Files, of a modification that would reduce the loss in the splitter section through the use of PIN diodes. Feedback on this would be welcome. Adam did not do this full modification, but a subset of it and still saw noticeable improvement. Here is his description of what he did:

---

1) I did not use the conductor to ground (instead I use only the resistor cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like you said.(I did it quickly with resistor)

2) I did not use the RF chokes in the diode bias, but you are right it is better to use it (cca 100 nH) Don't forget to ground the rf choke with the 1nF capacitor just between the choke and the bias resistor!

3) Current limiting resistors 680 ohm

4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet of your proposed PIN diodes it looks like both are ok.

So to check this quickly I just used the resistors without the chokes.
How I did it quickly and dirty:

1) replace the resistors with pin diodes.
2) ground the diodes with 470 ohm (can be done from the top side)
3) drill the holes on the pad where diodes and 18 pF are soldered.
4) where drilled (on the ground side of the PCB) with exacto knife i made 2 pads
5) soldered C wire (to create via) through the two holes
6) soldered 680 ohms SMD resistors on the cutted pads
7) soldered SMD 1nF to ground from the second pad
8) connect this pad (where 1nF and 680 ohm connected) with the wire to the +RX and the other to the +TX

188. Re: [w1ghz-transverter-builders] PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-01 20:54:40 UTC
From: Zack Widup
Topic: 187 Message: 188

I like the idea. I imagine any RF PIN diode would work. I have some 1N3079 (I think) which I was going to use in one project that I never built.

I'll have to experiment.

73, Zack W9SZ

On Tue, Feb 1, 2011 at 2:27 PM, thepalmhq <thepalmhq@...> wrote:

>
>
> Per a conversation with Adam, 9A4QV, I have posted a proposed schematic,
> under Photos section and also under Files, of a modification that would
> reduce the loss in the splitter section through the use of PIN diodes.
> Feedback on this would be welcome. Adam did not do this full modification,
> but a subset of it and still saw noticeable improvement. Here is his
> description of what he did:
>
> ----------
>
> 1) I did not use the conductor to ground (instead I use only the resistor
> cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like
> you said.(I did it quickly with resistor)
>
> 2) I did not use the RF chokes in the diode bias, but you are right it is
> better to use it (cca 100 nH) Don't forget to ground the rf choke with the
> 1nF capacitor just between the choke and the bias resistor!
>
> 3) Current limiting resistors 680 ohm
>
> 4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet of
> your proposed PIN diodes it looks like both are ok.
>
> So to check this quickly I just used the resistors without the chokes.
> How I did it quickly and dirty:
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> 2) ground the diodes with 470 ohm (can be done from the top side)
> 3) drill the holes on the pad where diodes and 18 pF are soldered.
> 4) where drilled (on the ground side of the PCB) with exacto knife i made 2
> pads
> 5) soldered C wire (to create via) through the two holes
> 6) soldered 680 ohms SMD resistors on the cutted pads
> 7) soldered SMD 1nF to ground from the second pad
> 8) connect this pad (where 1nF and 680 ohm connected) with the wire to the

> +RX and the other to the +TX
>
>
>

189. Re: 2010 group purchase for W1GHZ baords and parts

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-03 12:05:04 UTC
From: adam
Topic: 111 Message: 189

The hair-pin filter measurements (3-section):
http://croatia-microwave.blogspot.com/2011/02/w1ghz-1296-mhz-hairpin-filter.html

9a4qv
presently offshore Nigeria (5N)

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> Hi guys,
>
> after all, I measured the loos in the filter (1296MHz - the very first version). Actually I duplicate just the filter on the FR4 1.6mm and it comes out that the I.L. on the 1296 MHz is 4dB.
> Thr RSU versions has one pole more in the filter, so the loos should be higher.
> I will publish soon the filter measurements on my blog with all data.
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> Another problem is resistor splitter. It is simple but the loos is 6db (if ideal). Three port resistive splitter terminated with the 50 ohms should use two 18 ohms resistors according to the calculations. For some reason, Paul is using other values (probable to increase the isolation between the ports), so I think that we loose more than 6dB just on this simple splitter.
> I overcome this problem simply by replacing the resistors with the PIN diodes,the power for the control can be easily done from the ground pcb side. It helps a lot, big improvement on the rx side is clearly seen. With the PIN diodes switch you can save some 6dB.
>
> Well, to reduce the overall costs, Paul is using 0.062" boards. The vias are just enough for mmics that he is using in this project. If you try to use some other low noise MMICS on the rx side, most probably your amplifier will ended as the oscillator. Some data sheets recomended the 0.031" boards as a maximum. Paul is using up to 3 vias for each ground pin. If you experience the oscillations, maybe you can drill some more holes for C wire vias. Together with the PIN diods, this can maybe stop the oscillations.
>
> At the end, the N.F. is mainly depending on the first component you are using in the rx chain. One preamp stage will helps a lot. Adding an extra bandpass filter between this two rx stages will helps even more..
>
> Adam
>

190. Re: [w1ghz-transverter-builders]W1GHZ hairpin with low ER?

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-04 00:45:51 UTC
From: Mark Mcnutt
Topic: 111 Message: 190

Any results with this design on Duroid or other HF Laminate?

KB3PGM
MARK

"Good judgment comes from experience, experience which usually was the result of poor judgment."-Voytek Kurtyka

--- On Thu, 2/3/11, adam <adam9a4qv@yahoo.com> wrote:

From: adam <adam9a4qv@...>
Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ baords and parts
To: w1ghz-transverter-builders@yahoogroups.com
Date: Thursday, February 3, 2011, 7:05 AM

The hair-pin filter measurements (3-section):

http://croatia-microwave.blogspot.com/2011/02/w1ghz-1296-mhz-hairpin-filter.html

9a4qv

presently offshore Nigeria (5N)

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:

>

> Hi guys,

>

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> Thr RSU versions has one pole more in the filter, so the loos should be higher.

> I will publish soon the filter measurements on my blog with all data.

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>

> Adam

>

191. Re: [w1ghz-transverter-builders]W1GHZ hairpin with low ER?

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-04 01:48:57 UTC
From: Zack Widup
Topic: 111 Message: 191

I could probably adapt them to Duroid or teflon board but I don't think it needs to be done. Paul's philosophy of design was "Gain is cheap." You can always jockey around MMIC types at these frequencies to get the gain you need and to overcome the filter loss.
I did run the designs as they are now on FR-4 with Sonnet Lite and its analysis of the filters looked really good. Quite better than those in the original no-tune transverters.

73, Zack W9SZ

On Thu, Feb 3, 2011 at 6:45 PM, Mark Mcnutt <photoclimber@...> wrote:

>
>
> Any results with this design on Duroid or other HF Laminate?
>
> KB3PGM
> MARK
>
> "Good judgment comes from experience, experience which usually was the
> result of poor judgment."-Voytek Kurtyka
>
> --- On *Thu, 2/3/11, adam <adam9a4qv@...>* wrote:
>
>
> From: adam <adam9a4qv@yahoo.com>
> Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ
> baords and parts
> To: w1ghz-transverter-builders@yahoogroups.com
> Date: Thursday, February 3, 2011, 7:05 AM
>
>
>
>
>
> The hair-pin filter measurements (3-section):
>
> http://croatia-microwave.blogspot.com/2011/02/w1ghz-1296-mhz-hairpin-filter.html
>
> 9a4qv
> presently offshore Nigeria (5N)
>
> --- In w1ghz-transverter-builders@yahoogroups.com<http://mc/compose?to=w1ghz-transverter-builders%40yahoogroups.com>,
> "adam" <adam9a4qv@...> wrote:
> >
> > Hi guys,

> >
> > after all, I measured the loos in the filter (1296MHz - the very first
> version). Actually I duplicate just the filter on the FR4 1.6mm and it comes
> out that the I.L. on the 1296 MHz is 4dB.
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> the PIN diodes switch you can save some 6dB.
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> > Well, to reduce the overall costs, Paul is using 0.062" boards. The vias
> are just enough for mmics that he is using in this project. If you try to
> use some other low noise MMICS on the rx side, most probably your amplifier
> will ended as the oscillator. Some data sheets recomended the 0.031" boards
> as a maximum. Paul is using up to 3 vias for each ground pin. If you
> experience the oscillations, maybe you can drill some more holes for C wire
> vias. Together with the PIN diods, this can maybe stop the oscillations.
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> > At the end, the N.F. is mainly depending on the first component you are
> using in the rx chain. One preamp stage will helps a lot. Adding an extra
> bandpass filter between this two rx stages will helps even more..
> >
> > Adam
> >
>
>
>

192. Re: [w1ghz-transverter-builders]W1GHZ hairpin with low ER?

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-04 03:17:08 UTC
From: Mark Mcnutt
Topic: 111 Message: 192

I was looking at the High side Stopbands without the high attenuation as on the low freq. side and was curious if it was a result of high capacity to ground as a result of the ~4.8 4.9 ER of the FR4? I have seen it in other UHF/microwave filters and DR's on G10 and FR4.

KB3PGM
Mark

I

could probably adapt them to Duroid or teflon board but I don't think it needs to be done. Paul's philosophy of design was "Gain is cheap." You can always jockey around MMIC types at these frequencies to get the gain you need and to overcome the filter loss.

I did run the designs as they are now on FR-4 with Sonnet Lite and its analysis of the filters looked really good. Quite better than those in the original no-tune transverters.

73, Zack W9SZ

On Thu, Feb 3, 2011 at 6:45 PM, Mark Mcnutt <photoclimber@...> wrote:

Any results with this design on Duroid or other HF Laminate?

KB3PGM
MARK

193. Re: [w1ghz-transverter-builders]W1GHZ hairpin with low ER?

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-04 05:20:23 UTC
From: adam
Topic: 111 Message: 193

No doubt that Paul made a good job with this really cheap approach.
He mentioned also the downside of such a simple project, and we are all aware of it.

Of course, we can always improve the project and make some modifications that will give us even better results with not so expensive solution.

My opinion is that instead of using 0.062" FR-4 we can try with the 0.031" FR-4. This will be good enough for the 23cm transverter. Using duroid, teflon or Alumina may be to expensive for such a project. 0.031" FR-4 is not expensive and can be easily purchased on the e-bay or flea market. This will helps a lot, not just reducing the filter loss, but will also give us more stability to mmics and possibility to use other mmic-s for the same project.

If there is enough will, the hole "list of wish" or imprevment cna be done before designing the new pcb. eg. another mmic rx, stage, or filter betwean this two stages, or posibility to use resistor splitter or PIN switching on the pcd etc.

brgds
adam

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> I could probably adapt them to Duroid or teflon board but I don't think it
> needs to be done. Paul's philosophy of design was "Gain is cheap." You can
> always jockey around MMIC types at these frequencies to get the gain you
> need and to overcome the filter loss.
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> the original no-tune transverters.
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> 73, Zack W9SZ
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> On Thu, Feb 3, 2011 at 6:45 PM, Mark Mcnutt <photoclimber@...> wrote:
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> > >
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> > > result of poor judgment."-Voytek Kurtyka
> > >
> > > --- On *Thu, 2/3/11, adam <adam9a4qv@...>* wrote:

> >
> >
> > From: adam <adam9a4qv@...>
> > Subject: [w1ghz-transverter-builders] Re: 2010 group purchase for W1GHZ
> > baords and parts
> > To: w1ghz-transverter-builders@yahoogroups.com
> > Date: Thursday, February 3, 2011, 7:05 AM
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> > > Hi guys,
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> > bandpass filter between this two rx stages will helps even more..
> > >
> > > Adam
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194. Re: [w1ghz-transverter-builders]W1GHZ hairpin with low ER?

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-04 05:30:11 UTC
From: Zack Widup
Topic: 111 Message: 194

I need to look back through some notes but I believe it is a
characteristic of the filter design itself. You'd have to redesign the
filters to alter it. Translating the filters over to another substrate
and/or thickness would give you about the same shape.

73, Zack W9SZ

On 2/3/11, Mark Mcnutt <photoclimber@...> wrote:
> I was looking at the High side Stopbands without the high attenuation as on
> the low freq. side and was curious if it was a result of high capacity to
> ground as a result of the ~4.8 4.9 ER of the FR4? I have seen it in other
> UHF/microwave filters and DR's on G10 and FR4.
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> Mark
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> On Thu, Feb 3, 2011 at 6:45 PM, Mark Mcnutt <photoclimber@...> wrote:

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195. Re: [w1ghz-transverter-builders] PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-08 18:47:44 UTC
From: Zack Widup
Topic: 187 Message: 195

I just ordered some BAP63-03 PIN diodes from Mouser. They are SMD single PIN diodes and are inexpensive. They should be good to 3 GHz. It looks like the resistors in the original circuit can be replaced fairly easily with these. I am going to try therm out in my 902 MHz transverter.

Mouser also has some of the 5082-3080 and 5082-3081 PIN diodes in the glass packages with axial leads but they are much more expensive.

I do have a question about the circuit that was posted with the PIN mod. The inductors are listed as 1 nH. This is only about 5.7 ohms reactance at 902 MHz. Is that enough reactance for this circuit?

73, Zack W9SZ

On Tue, Feb 1, 2011 at 2:54 PM, Zack Widup <w9sz.zack@...> wrote:

> I like the idea. I imagine any RF PIN diode would work. I have some 1N3079
> (I think) which I was going to use in one project that I never built.
>
> I'll have to experiment.
>
> 73, Zack W9SZ
>
>
>
> On Tue, Feb 1, 2011 at 2:27 PM, thepalmhq <thepalmhq@gmail.com> wrote:
>
>>
>>
>> Per a conversation with Adam, 9A4QV, I have posted a proposed schematic,
>> under Photos section and also under Files, of a modification that would
>> reduce the loss in the splitter section through the use of PIN diodes.
>> Feedback on this would be welcome. Adam did not do this full modification,
>> but a subset of it and still saw noticeable improvement. Here is his
>> description of what he did:
>>
>> ----------
>>
>> 1) I did not use the conductor to ground (instead I use only the resistor
>> cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like
>> you said.(I did it quickly with resistor)
>>
>> 2) I did not use the RF chokes in the diode bias, but you are right it is
>> better to use it (cca 100 nH) Don't forget to ground the rf choke with the
>> 1nF capacitor just between the choke and the bias resistor!

>>
>> 3) Current limiting resistors 680 ohm
>>
>> 4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet of
>> your proposed PIN diodes it looks like both are ok.
>>
>> So to check this quickly I just used the resistors without the chokes.
>> How I did it quickly and dirty:
>>
>> 1) replace the resistors with pin diodes.
>> 2) ground the diodes with 470 ohm (can be done from the top side)
>> 3) drill the holes on the pad where diodes and 18 pF are soldered.
>> 4) where drilled (on the ground side of the PCB) with exacto knife i made
>> 2 pads
>> 5) soldered C wire (to create via) through the two holes
>> 6) soldered 680 ohms SMD resistors on the cutted pads
>> 7) soldered SMD 1nF to ground from the second pad
>> 8) connect this pad (where 1nF and 680 ohm connected) with the wire to the
>> +RX and the other to the +TX
>>
>>
>>
>
>

196. Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-09 05:43:33 UTC
From: adam
Topic: 187 Message: 196

Hi Zack,

Inductors value for your case should be from 100 to 150 nH.
1 nH is probably typo error.

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> I just ordered some BAP63-03 PIN diodes from Mouser. They are SMD single PIN
> diodes and are inexpensive. They should be good to 3 GHz. It looks like the
> resistors in the original circuit can be replaced fairly easily with these.
> I am going to try therm out in my 902 MHz transverter.
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> Mouser also has some of the 5082-3080 and 5082-3081 PIN diodes in the glass
> packages with axial leads but they are much more expensive.
>
> I do have a question about the circuit that was posted with the PIN mod. The
> inductors are listed as 1 nH. This is only about 5.7 ohms reactance at 902
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> 73, Zack W9SZ
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> On Tue, Feb 1, 2011 at 2:54 PM, Zack Widup <w9sz.zack@...> wrote:
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> > I like the idea. I imagine any RF PIN diode would work. I have some 1N3079
> > (I think) which I was going to use in one project that I never built.
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> > I'll have to experiment.
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> > 73, Zack W9SZ
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> > On Tue, Feb 1, 2011 at 2:27 PM, thepalmhq <thepalmhq@...> wrote:
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> >> Per a conversation with Adam, 9A4QV, I have posted a proposed schematic,
> >> under Photos section and also under Files, of a modification that would
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> >> Feedback on this would be welcome. Adam did not do this full modification,
> >> but a subset of it and still saw noticeable improvement. Here is his
> >> description of what he did:
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> >>
> >> 1) I did not use the conductor to ground (instead I use only the resistor
> >> cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like
> >> you said.(I did it quickly with resistor)
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> >> 2) I did not use the RF chokes in the diode bias, but you are right it is
> >> better to use it (cca 100 nH) Don't forget to ground the rf choke with the
> >> 1nF capacitor just between the choke and the bias resistor!
> >>
> >> 3) Current limiting resistors 680 ohm
> >>
> >> 4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet of
> >> your proposed PIN diodes it looks like both are ok.
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> >> 1) replace the resistors with pin diodes.
> >> 2) ground the diodes with 470 ohm (can be done from the top side)
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> >> 4) where drilled (on the ground side of the PCB) with exacto knife i made
> >> 2 pads
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> >> 6) soldered 680 ohms SMD resistors on the cutted pads
> >> 7) soldered SMD 1nF to ground from the second pad
> >> 8) connect this pad (where 1nF and 680 ohm connected) with the wire to the
> >> +RX and the other to the +TX
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> >>
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>

197. Re: [w1ghz-transverter-builders] Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-09 05:46:19 UTC
From: Zack Widup
Topic: 187 Message: 197

That's more like it!
:-)

73, Zack W9SZ

On 2/8/11, adam <adam9a4qv@...> wrote:
> Hi Zack,
>
> Inductors value for your case should be from 100 to 150 nH.
> 1 nH is probably typo error.
>
> Adam
>
> --- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup
> <w9sz.zack@...> wrote:
>>
>> I just ordered some BAP63-03 PIN diodes from Mouser. They are SMD single
>> PIN
>> diodes and are inexpensive. They should be good to 3 GHz. It looks like
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>> I do have a question about the circuit that was posted with the PIN mod.
>> The
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>> 73, Zack W9SZ
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>> On Tue, Feb 1, 2011 at 2:54 PM, Zack Widup <w9sz.zack@...> wrote:
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>> > I like the idea. I imagine any RF PIN diode would work. I have some
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>> > (I think) which I was going to use in one project that I never built.
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>> > I'll have to experiment.
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>> > 73, Zack W9SZ
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>> >> cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH
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>> >> you said.(I did it quickly with resistor)
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>> >> 1nF capacitor just between the choke and the bias resistor!
>> >>
>> >> 3) Current limiting resistors 680 ohm
>> >>
>> >> 4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet
>> >> of
>> >> your proposed PIN diodes it looks like both are ok.
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>> >> +RX and the other to the +TX
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198. Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-09 14:33:23 UTC
From: thepalmhq
Topic: 187 Message: 198

I will update the schematics, re-upload them, and ping the group when it's done. Zack, when you do this modification please be sure to let us know the results.

Thanks and 73,

David

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> That's more like it!
> :-)
>
> 73, Zack W9SZ
>
>
> On 2/8/11, adam <adam9a4qv@...> wrote:
> > Hi Zack,
> >
> > Inductors value for your case should be from 100 to 150 nH.
> > 1 nH is probably typo error.
> >
> > Adam

199. Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-09 14:50:28 UTC
From: thepalmhq
Topic: 187 Message: 199

The schematics have been updated with the new inductor value and also the specific PIN diode that W9SZ referenced. Thanks and 73.

200. Re: [w1ghz-transverter-builders] Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-09 15:44:08 UTC
From: Zack Widup
Topic: 187 Message: 200

OK, I hope to do something with it this weekend if I get the parts by then.

I built a transverter for 144 MHz several years ago that used the same basic idea of connecting the transmit and receive MMIC's to one mixer and the only switching used was turning on and off the power to the appropriate MMIC chain. It's the transverter I installed inside a modified HTX-100 to make it a dedicated microwave IF rig and it's been performing fine for several years and hundreds of QSO's.

73, Zack W9SZ

On Wed, Feb 9, 2011 at 8:33 AM, thepalmhq <thepalmhq@...> wrote:

>
>
> I will update the schematics, re-upload them, and ping the group when it's
> done. Zack, when you do this modification please be sure to let us know the
> results.
>
> Thanks and 73,
>
> David
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...>
> wrote:
> >
> > That's more like it!
> > :-)
> >
> > 73, Zack W9SZ
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> >
> > On 2/8/11, adam <adam9a4qv@...> wrote:
> > > Hi Zack,
> > >
> > > Inductors value for your case should be from 100 to 150 nH.
> > > 1 nH is probably typo error.
> > >
> > > Adam
>
>
>

201. New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-09 15:45:58 UTC
From: w1ghz-transverter-builders@yahoogroups.co
Topic: 30 Message: 201

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the w1ghz-transverter-builders
group.

File : /PIN SWITCH.JPG
Uploaded by : adam9a4qv <adam9a4qv@...>
Description : PIN switch "By the book" from The PIN diode circuit designers' handbook by
Microsemi-Watertown

You can access this file at the URL:
http://groups.yahoo.com/group/w1ghz-transverter-builders/files/PIN%20SWITCH.JPG

To learn more about file sharing for your group, please visit:
http://help.yahoo.com/l/us/yahoo/groups/original/members/web/index.html
Regards,

adam9a4qv <adam9a4qv@...>

202. 756 LO Board C18 and ferrite question

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-21 02:45:05 UTC
From: ke4qdl
Topic: 202 Message: 202

Hello,

I recently purchased a 756 LO board and parts kit from W8ISS. I am wondering why there is no C18 included in the package- is C18 not needed for the XCO that is used? I know this must be simple as pie, but I simply can't figure out the answer.

Also, what kind of ferrites are you guys using on the power runs on the groundplane side of the LO?

Any help or clues would be appreciated.

Best,
Chase

203. Re: [w1ghz-transverter-builders] 756 LO Board C18 and ferrite question

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-21 03:39:24 UTC
From: Zack Widup
Topic: 202 Message: 203

My guess is C18 is probably not absolutely necessary. I think those
oscillator modules have built-in bypasses on the power leads.

Any ferrite beads should be OK. I have a bunch of 63 and 43 mix beads
that I use in a lot of projects.

73, Zack W9SZ

On 2/20/11, ke4qdl <ke4qdl@...> wrote:
> Hello,
>
> I recently purchased a 756 LO board and parts kit from W8ISS. I am
> wondering why there is no C18 included in the package- is C18 not needed for
> the XCO that is used? I know this must be simple as pie, but I simply can't
> figure out the answer.
>
> Also, what kind of ferrites are you guys using on the power runs on the
> groundplane side of the LO?
>
> Any help or clues would be appreciated.
>
> Best,
> Chase
>
>
>

204. Re: 756 LO Board C18 and ferrite question

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-21 03:44:46 UTC
From: ke4qdl
Topic: 202 Message: 204

Thanks Zack!

It is such a small value that I thought it couldn't matter much. But I am such a rules/diagram follower (though, not much of a thinker!) I couldn't help but ask the question! I did look at the data sheet, but I'm not sure I downloaded the right thing.

How did the mod go on the 902 transverter go?

Best,
Chase

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> My guess is C18 is probably not absolutely necessary. I think those
> oscillator modules have built-in bypasses on the power leads.
>
> Any ferrite beads should be OK. I have a bunch of 63 and 43 mix beads
> that I use in a lot of projects.
>
> 73, Zack W9SZ
>
>
> On 2/20/11, ke4qdl <ke4qdl@...> wrote:
> > Hello,
> >
> > I recently purchased a 756 LO board and parts kit from W8ISS. I am
> > wondering why there is no C18 included in the package- is C18 not needed for
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> > figure out the answer.
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> > Also, what kind of ferrites are you guys using on the power runs on the
> > groundplane side of the LO?
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> > Any help or clues would be appreciated.
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> > Best,
> > Chase
> >
> >
> >
>

205. Re: [w1ghz-transverter-builders] Re: 756 LO Board C18 and ferrite question

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-21 04:11:04 UTC
From: Zack Widup
Topic: 202 Message: 205

I'm still thinking about how I want to go about doing the PIN diode mod. I did replace the resistors with the PIN diodes on my board. There isn't a lot of room in that area of the 902 board to add pads, though. I think I will probably add a copper tape pad for each of the chokes needed for the PIN diode circuit and then on the transmit and receive biasing lines I will drill holes through the board and use 1/4 watt carbon comp resistors with leads through the board and then put jumper wires to the B+ lines for transmit and receive.

With the diodes I got, the BAP-63's, and with 8 volts for supply, a 120 ohm resistor should give 57 to 60 mA of current through the diode, which should do fine. Looking at the specs for the diode, you could probably go as low as 10 mA, so any resistor between 120 and 680 ohms would probably work.

73, Zack W9SZ

On 2/20/11, ke4qdl <ke4qdl@...> wrote:
> Thanks Zack!
>
> It is such a small value that I thought it couldn't matter much. But I am
> such a rules/diagram follower (though, not much of a thinker!) I couldn't
> help but ask the question! I did look at the data sheet, but I'm not sure I
> downloaded the right thing.
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> How did the mod go on the 902 transverter go?
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> Best,
> Chase
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> --- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup
> <w9sz.zack@...> wrote:
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>> My guess is C18 is probably not absolutely necessary. I think those
>> oscillator modules have built-in bypasses on the power leads.
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>> Any ferrite beads should be OK. I have a bunch of 63 and 43 mix beads
>> that I use in a lot of projects.
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>> 73, Zack W9SZ
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>> On 2/20/11, ke4qdl <ke4qdl@...> wrote:
>> > Hello,
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>> > wondering why there is no C18 included in the package- is C18 not needed
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>> > the XCO that is used? I know this must be simple as pie, but I simply
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>> > groundplane side of the LO?
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>> > Chase
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>

206. 902 transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-02-28 02:22:28 UTC
From: Zack Widup
Topic: 206 Message: 206

So far so good on the 902 transverter. I drilled three holes in the board where I planned on putting the inductors for the PIN diode switches. I cut a small rectangle around each hole on the ground-plane side of the board with an X-acto knife to make a pad on the other side. I put tiny pieces of copper tape on the pattern side for mounting of the chokes. I used 120 nH chokes.

On the other side I put 1000 pF caps from the pads to ground for the transmit and receive switching circuits and passed a lead for a 150 ohm resistor through each hole. I soldered the resistors on top and bottom and connected the other ends to the appropriate transmit and receive power pads on the end of the board.

I can make a drawing or maybe get a photo of what I did.

I connected power for the phase-locked LO circuit and LO multiplier and transverter boards and interconnected all those parts. I powered it up and everything looked fine voltage-wise. The LO phase-locked to my 10 MHz OCXO reference just fine. I could hear a slight increase in noise on the IF rig on receive when LO drive was applied. Nothing appeared to be oscillating. I did not have a 902 MHz signal handy at the time to see if I could receive it. But my frequency counter reads 758.0000 MHz for the LO so I think that is good.

I tried the transmit chain. With no transmit drive I see about -4 dBm of LO coming out of the transmit output. I have not yet finished the 902 MHz helical filter assembly I plan on putting on the transmit and receive outputs, so I expected a little LO leakage at this point. With +3 dBm of IF drive on transmit, I get +17 dBm of output at 902 MHz. So everything looks fine here, too, with nothing oscillating on the transmit chain.

Now I need to finish the helical filter assembly, add a receive LNA and power module and see how it does.

73, Zack W9SZ

207. Re: 902 transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-02 19:46:31 UTC
From: thepalmhq
Topic: 206 Message: 207

Thanks for the update, Zack.

I too am making headway on my 902 transverter. I put in helical filters for the LO, receive, and transmit. I'm still getting about 9 dBm out after the transmit filter. The plan is that later this week or early next I will drive a Motorola SHW5151 for 5 watts out. That 5 watts is just right to drive a Motorola cell amplifier for 150 watts at the home QTH, or more modestly a small Motorola stripline amplifier board using a MRF842 which should be good for another 6 dB of gain and about 20-25 watts out for roving.

I still haven't received anything on this thing yet--my tests have been transmit-only because I haven't had a 902 MHz signal source. But I just got a 22 MHz TTL crystal oscillator, so I'm hoping to be able to hear the 41st harmonic of that.

I think I'm going to hold off on the PIN diode modification until I try the circuit as-is. Please do submit a photo of your PIN diode mods--I think that a lot of people will want to try that.

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> So far so good on the 902 transverter. I drilled three holes in the
> board where I planned on putting the inductors for the PIN diode
> switches. I cut a small rectangle around each hole on the ground-plane
> side of the board with an X-acto knife to make a pad on the other
> side. I put tiny pieces of copper tape on the pattern side for
> mounting of the chokes. I used 120 nH chokes.

208. Re: [w1ghz-transverter-builders] Re: 902 transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-02 19:53:50 UTC
From: Zack Widup
Topic: 206 Message: 208

Hi David,

OK, I'll see if I can get a decent photo of the PIN diode mod. By the way, my LO level is adjustable and I set it to exactly +7.0 dBm into the mixer port before soldering in the ADE-5 mixer.

Has anyone done anything with the W1GHZ lower band transverters (Miniverter-F)? I have acquired some 3-pole helical filters for 432 but they are smaller than the ones he used on his board. I will probably have to redesign or reconfigure the board to use with one of these filters.

73, Zack W9SZ

On Wed, Mar 2, 2011 at 1:46 PM, thepalmhq <thepalmhq@...> wrote:

>
>
>
>
> Thanks for the update, Zack.
>
> I too am making headway on my 902 transverter. I put in helical filters for
> the LO, receive, and transmit. I'm still getting about 9 dBm out after the
> transmit filter. The plan is that later this week or early next I will drive
> a Motorola SHW5151 for 5 watts out. That 5 watts is just right to drive a
> Motorola cell amplifier for 150 watts at the home QTH, or more modestly a
> small Motorola stripline amplifier board using a MRF842 which should be good
> for another 6 dB of gain and about 20-25 watts out for roving.
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> I still haven't received anything on this thing yet--my tests have been
> transmit-only because I haven't had a 902 MHz signal source. But I just got
> a 22 MHz TTL crystal oscillator, so I'm hoping to be able to hear the 41st
> harmonic of that.
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> I think I'm going to hold off on the PIN diode modification until I try the
> circuit as-is. Please do submit a photo of your PIN diode mods--I think that
> a lot of people will want to try that.
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> 73,
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> David W9HQ
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> --- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...>
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> > side of the board with an X-acto knife to make a pad on the other
> > side. I put tiny pieces of copper tape on the pattern side for
> > mounting of the chokes. I used 120 nH chokes.
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>
>

209. Re: [w1ghz-transverter-builders] Re: 902 transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-02 21:01:58 UTC
From: Vince Mulhollon
Topic: 206 Message: 209

On Wed, Mar 02, 2011 at 07:46:31PM -0000, thepalmhq wrote:
> I too am making headway on my 902 transverter. I put in helical filters for the LO, receive, and transmit.

I'm building the 1296 and up xverters not the 902.
However, I was curious if you purchased new helicals, if new,
where, and if you had any experiences other than "just worked as
per mfgr datasheet". I have been thinking about this for my 1296
as I live VERY close to some strong 1090 MHz emitters (aviation).

I casually googled for any previous discussion, did not find.

73 de Vince N9NFB EN53ua

210. Filtering: LO, transmit, and receive

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-02 21:38:36 UTC
From: thepalmhq
Topic: 210 Message: 210

In a different thread, Vince wrote:

I'm building the 1296 and up xverters not the 902. However, I was curious if you purchased new helicals, if new, where, and if you had any experiences other than "just worked as per mfgr datasheet". I have been thinking about this for my 1296 as I live VERY close to some strong 1090 MHz emitters (aviation).

I casually googled for any previous discussion, did not find.

73 de Vince N9NFB EN53ua

Great questions. I thought I would start a new thread dedicated to the topic of filtering. Please share out your ideas and your experiences.

Helical filters are not wildly expensive purchased new (~$20 apiece from Digikey), but in the spirit of the inexpensive W1GHZ transverter designs it seems worth looking at other solutions that may be cheaper.

For the 902 MHz transverter, I got some helical filters from WA5VJB, originally used in a cell application. They were centered on 880 MHz when I got them, but were easily retuned to 756 and 902 MHz for LO and transmit/receive.

W6PQL has plans for tuned cavity filters on 902, 1296, and 2304 MHz that look pretty easy to build and, from his measurements, seem pretty effective. The plans for these can be found here:

http://www.w6pql.com/33cm_filter.htm
<http://www.w6pql.com/33cm_filter.htm>
http://www.w6pql.com/23cm_filters.htm
<http://www.w6pql.com/23cm_filters.htm>
http://www.w6pql.com/13cm_filter.htm
<http://www.w6pql.com/13cm_filter.htm>

[www.mouser.com <http://www.mouser.com/> has the 1/4" aluminum stand-offs and the Hammond boxes used in those designs.]

I thought that this PCB bandpass filter design for 1296 also looked promising:

www.setileague.org/articles/ham/1296bpf.pd
<www.setileague.org/articles/ham/1296bpf.pd>
www.setileague.org/articles/ham/1296bpf2.pdf
<www.setileague.org/articles/ham/1296bpf2.pdf>

When you get up above 2304, it would seem that W1GHZ's new "10 GHz Personal Beacon" board might be hacked a bit to get some inexpensive

pipe cap filters for 3456 MHz and above:

http://www.w1ghz.org/small_proj/Beacon_10GHz.zip
<http://www.w1ghz.org/small_proj/Beacon_10GHz.zip>

Occasionally on EBay you can get filters that were used for NRAO applications and sometimes these can be retuned for use in the ham bands or for a particular LO frequency. So you might want to have an automated search that pings you when something concerning NRAO is listed there.

Again, those of you with ideas and experience in filtering for LOs and main frequencies for transverters in general and for W1GHZ transverters in particular, please share with the group.

73,

David W9HQ

211. Re: [w1ghz-transverter-builders] Re: 902 transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-02 21:44:09 UTC
From: Zack Widup
Topic: 206 Message: 211

I got the helicals I have for 1296 from BEC Distribution, Ltd. They are in the U.K. - http://www.bec.co.uk.

The 1296 filters are here:

http://www.bec.co.uk/MainSite/Product.aspx?PrefixID=81&TypeID=81&ProductID=0

The ones I got are their part number 083230, #5HT-123080C-1230. They can be tuned to 1296. They show 116 in stock as of now. These people were very easy to work with and take Mastercard and Visa. Note the prices shown are in British pounds.

73, Zack W9SZ

On Wed, Mar 2, 2011 at 3:01 PM, Vince Mulhollon <vince@...> wrote:

>
>
> On Wed, Mar 02, 2011 at 07:46:31PM -0000, thepalmhq wrote:
> > I too am making headway on my 902 transverter. I put in helical filters
> for the LO, receive, and transmit.
>
> I'm building the 1296 and up xverters not the 902.
> However, I was curious if you purchased new helicals, if new,
> where, and if you had any experiences other than "just worked as
> per mfgr datasheet". I have been thinking about this for my 1296
> as I live VERY close to some strong 1090 MHz emitters (aviation).
>
> I casually googled for any previous discussion, did not find.
>
> 73 de Vince N9NFB EN53ua
>
>
>

212. Re: [w1ghz-transverter-builders] Filtering: LO, transmit, and receive

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-02 22:17:10 UTC
From: Ethan Miller K8GU
Topic: 210 Message: 212

I don't know if he subscribes to this reflector or whether he minds me mentioning it, but Ben, N3UM, and I have been talking a lot lately about his efforts to get his 1296 and then 903 boards working. He is very thorough and has carefully solved a few of the problems associated with the W1GHZ designs, the details of which I will not expound here. I only mention this to say that he has very successfully built the 1296 unit using the W6PQL filter, Mitsubishi PA and pHEMT LNA kits. I was part-way into exactly the same architecture when I began talking to him after we worked in the Jan VHF contest. I should be able to report my experiences with this architecture over the next few weeks/months.

Ben used nothing more than an RF probe and a Diamond (I believe) wattmeter to tune his system up. I believe he tuned the filter for maximum smoke and got about 10 watts. But, there are a lot of details that I hope he shares in an article soon.

73,

--Ethan, K8GU/3.

On Wed, Mar 2, 2011 at 4:38 PM, thepalmhq <thepalmhq@...> wrote:

>
>
> In a different thread, Vince wrote:
>
> I'm building the 1296 and up xverters not the 902. However, I was curious
> if you purchased new helicals, if new, where, and if you had any experiences
> other than "just worked as per mfgr datasheet". I have been thinking about
> this for my 1296 as I live VERY close to some strong 1090 MHz emitters
> (aviation).
>
> I casually googled for any previous discussion, did not find.
>
> 73 de Vince N9NFB EN53ua
>
>
> Great questions. I thought I would start a new thread dedicated to the
> topic of filtering. Please share out your ideas and your experiences.
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> Helical filters are not wildly expensive purchased new (~$20 apiece from
> Digikey), but in the spirit of the inexpensive W1GHZ transverter designs it
> seems worth looking at other solutions that may be cheaper.
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> originally used in a cell application. They were centered on 880 MHz when I

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> W6PQL has plans for tuned cavity filters on 902, 1296, and 2304 MHz that
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> effective. The plans for these can be found here:
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> http://www.w6pql.com/33cm_filter.htm
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> http://www.w6pql.com/13cm_filter.htm
>
> [www.mouser.com has the 1/4" aluminum stand-offs and the Hammond boxes
> used in those designs.]
>
> I thought that this PCB bandpass filter design for 1296 also looked
> promising:
>
> www.setileague.org/articles/ham/1296bpf.pd
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>
> When you get up above 2304, it would seem that W1GHZ's new "10 GHz Personal
> Beacon" board might be hacked a bit to get some inexpensive pipe cap filters
> for 3456 MHz and above:
>
> http://www.w1ghz.org/small_proj/Beacon_10GHz.zip
>
> Occasionally on EBay you can get filters that were used for NRAO
> applications and sometimes these can be retuned for use in the ham bands or
> for a particular LO frequency. So you might want to have an automated
> search that pings you when something concerning NRAO is listed there.
>
> Again, those of you with ideas and experience in filtering for LOs and main
> frequencies for transverters in general and for W1GHZ transverters in
> particular, please share with the group.
>
> 73,
>
> David W9HQ
>
>
>
>

--
http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

213. Questions on grouding

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-07 17:41:34 UTC
From: thepalmhq
Topic: 213 Message: 213

Okay, today is the day I'm going to try and fire up a PA section and get 5 watts/no smoke out of my 902 MHz transverter. So wish me luck.

I have some questions about properly grounding these rigs.

* + 13.8 VDC and ground come in from the power supply. Do you immediately have a jumper that takes that ground to the chassis? Is a normal wire okay, or does it need to be a metal braid of some kind?

* Then you are going to power the LO board, the transverter board, and perhaps a PA section. Do they each get their own separate ground, or can you daisy chain them? Again again, normal wire okay, or some sort of metal braid?

* Are the grounds of the various PCBs connected together in any other way, or is just having each board with its power ground sufficient? I've got my LO and transverter boards sitting right next to each other. Should I bridge their groundplanes with some metal braiding (say, solder wick) in a few places along their mutual edge, or is this not necessary.

* The PCBs sit on metal standoffs and I've put nuts on top so that the standoffs should make decent contact with the groundplane of the PCB, to the standoffs, and hence to the chassis. Is this sufficient, or do I need additional grounding to the chassis from each PCB?

Thanks and 73,

David W9HQ

214. Re: [w1ghz-transverter-builders] Questions on grouding

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-07 20:33:23 UTC
From: Zack Widup
Topic: 213 Message: 214

I have built a lot of transverters using the same techniques for each one. They all work well. I haven't gotten the amp module circuit done for my 902 MHz W1GHZ transverter but I hope to have it done by this weekend. It's a rare M67773 module that I only have two of. It puts out 10 watts for 1 mW input. Anyway, here are some comments.

I use a 6-pin socket for power to my transverters. I only use 5 pins on most transverters. I have a line for low-power transmit voltage, a line for receive voltage and a line that is always powered for LO. I have a heavy wire for power to the amp module separate from the low-power transmit line, and I have a heavy wire for ground. All my transverters are in aluminum boxes.

The transmit and receive lines to the transverter are switched at my IF rig.

I've been running the heavy ground wire to the ground point of my amp module(s), which is a common ground for the entire chassis but is the shortest path to the amp module for the heavier current it draws. My LO module circuit boards are in little brass boxes made by soldering 0.75 or 1.0 inch wide 0.025 inch thick brass strips along the sides of the circuit boards. You can buy these strips at most hardware stores in a hobby brass display. I drill holes in the strips at appropriate points to fasten them to the aluminum chassis. That connection is the DC and RF ground for the module. The modules most of my transverters have are PLL, VCXO fundamental oscillator, and one or more frequency multiplier boards.

I fastened the LO multiplier board and the transverter board of my 902 transverter to the box with a long 4-40 screw through the hole in each corner. So these points serve as DC ground for those boards. The SMA end-launch connectors I soldered to the boards supply the RF grounds. I have never needed to add additional grounding straps to any of these boards with the aluminum box being the ground for each circuit.

I'll try to post some photos.

73, Zack W9SZ

On Mon, Mar 7, 2011 at 11:41 AM, thepalmhq <thepalmhq@...> wrote:

>
>
> Okay, today is the day I'm going to try and fire up a PA section and get
> 5 watts/no smoke out of my 902 MHz transverter. So wish me luck.
>
> I have some questions about properly grounding these rigs.
>
> * + 13.8 VDC and ground come in from the power supply. Do you

> immediately have a jumper that takes that ground to the chassis? Is a
> normal wire okay, or does it need to be a metal braid of some kind?
>
> * Then you are going to power the LO board, the transverter board, and
> perhaps a PA section. Do they each get their own separate ground, or
> can you daisy chain them? Again again, normal wire okay, or some sort
> of metal braid?
>
> * Are the grounds of the various PCBs connected together in any other
> way, or is just having each board with its power ground sufficient?
> I've got my LO and transverter boards sitting right next to each other.
> Should I bridge their groundplanes with some metal braiding (say, solder
> wick) in a few places along their mutual edge, or is this not necessary.
>
> * The PCBs sit on metal standoffs and I've put nuts on top so that the
> standoffs should make decent contact with the groundplane of the PCB, to
> the standoffs, and hence to the chassis. Is this sufficient, or do I
> need additional grounding to the chassis from each PCB?
>
> Thanks and 73,
>
> David W9HQ
>

215. Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-12 21:19:02 UTC
From: adam
Topic: 187 Message: 215

http://croatia-microwave.blogspot.com/

This is how it looks like on my side (quick and dirty but working).
A few modification, other mixer, other RX MMIC, PIN diode, home-brew PCB ...
At the end 40 mW out, and after lots of efforts I succeed to control rx mmic INA-02186 oscillations. (Do not use this MMIC on 0.062" G10/FR4) As you can notice, on the rx side I left some space for another RX MMIC amplifier. It will be much easier to control two MAR-6 on 0.062" board than one INA-02186..

GL
Adam

--- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq" <thepalmhq@...> wrote:
>
> Per a conversation with Adam, 9A4QV, I have posted a proposed schematic, under Photos section and also under Files, of a modification that would reduce the loss in the splitter section through the use of PIN diodes. Feedback on this would be welcome. Adam did not do this full modification, but a subset of it and still saw noticeable improvement. Here is his description of what he did:
>
> ----------
>
> 1) I did not use the conductor to ground (instead I use only the resistor cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like you said.(I did it quickly with resistor)
>
> 2) I did not use the RF chokes in the diode bias, but you are right it is better to use it (cca 100 nH) Don't forget to ground the rf choke with the 1nF capacitor just between the choke and the bias resistor!
>
> 3) Current limiting resistors 680 ohm
>
> 4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet of your proposed PIN diodes it looks like both are ok.
>
> So to check this quickly I just used the resistors without the chokes.
> How I did it quickly and dirty:
>
> 1) replace the resistors with pin diodes.
> 2) ground the diodes with 470 ohm (can be done from the top side)
> 3) drill the holes on the pad where diodes and 18 pF are soldered.
> 4) where drilled (on the ground side of the PCB) with exacto knife i made 2 pads
> 5) soldered C wire (to create via) through the two holes
> 6) soldered 680 ohms SMD resistors on the cutted pads
> 7) soldered SMD 1nF to ground from the second pad
> 8) connect this pad (where 1nF and 680 ohm connected) with the wire to the +RX and the

other to the +TX
>

216. Re: [w1ghz-transverter-builders] Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-13 00:05:29 UTC
From: Zack Widup
Topic: 187 Message: 216

I put an INA-10386 in mine as W1GHZ suggested. I haven't got
everything put together yet, but when I checked it out last time with
the receive input on the transverter not connected to anything, it did
not oscillate.

I have had trouble with SGA-4586's oscillating in some circuits. I
haven't seen an INA-10386 oscillate in any circuit yet.

I finished the helical filter board and I'm working on the power amp
module board for mine. I already have a W5LUA/WD5AGO GaAs preamp
built. If all goes well, I should have everything together by the end
of the weekend and I'm going to make a sked and try to work someone
with it some morning this week.

73, Zack W9SZ

On 3/12/11, adam <adam9a4qv@...> wrote:
>
> http://croatia-microwave.blogspot.com/
>
> This is how it looks like on my side (quick and dirty but working).
> A few modification, other mixer, other RX MMIC, PIN diode, home-brew PCB ...
> At the end 40 mW out, and after lots of efforts I succeed to control rx mmic
> INA-02186 oscillations. (Do not use this MMIC on 0.062" G10/FR4) As you can
> notice, on the rx side I left some space for another RX MMIC amplifier. It
> will be much easier to control two MAR-6 on 0.062" board than one
> INA-02186..
>
> GL
> Adam
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq"
> <thepalmhq@...> wrote:
>>
>> Per a conversation with Adam, 9A4QV, I have posted a proposed schematic,
>> under Photos section and also under Files, of a modification that would
>> reduce the loss in the splitter section through the use of PIN diodes.
>> Feedback on this would be welcome. Adam did not do this full
>> modification, but a subset of it and still saw noticeable improvement.
>> Here is his description of what he did:
>>
>> ----------------------------------
>>
>> 1) I did not use the conductor to ground (instead I use only the resistor
>> cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like

>> you said.(I did it quickly with resistor)
>>
>> 2) I did not use the RF chokes in the diode bias, but you are right it is
>> better to use it (cca 100 nH) Don't forget to ground the rf choke with the
>> 1nF capacitor just between the choke and the bias resistor!
>>
>> 3) Current limiting resistors 680 ohm
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>> 4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet of
>> your proposed PIN diodes it looks like both are ok.
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>> So to check this quickly I just used the resistors without the chokes.
>> How I did it quickly and dirty:
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>> 1) replace the resistors with pin diodes.
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>> 3) drill the holes on the pad where diodes and 18 pF are soldered.
>> 4) where drilled (on the ground side of the PCB) with exacto knife i made
>> 2 pads
>> 5) soldered C wire (to create via) through the two holes
>> 6) soldered 680 ohms SMD resistors on the cutted pads
>> 7) soldered SMD 1nF to ground from the second pad
>> 8) connect this pad (where 1nF and 680 ohm connected) with the wire to the
>> +RX and the other to the +TX
>>
>
>
>

217. Re: [w1ghz-transverter-builders] Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-14 14:05:43 UTC
From: Joshua M. Arritt
Topic: 187 Message: 217

Adam,

Are those "homebrew" vias to the GP on the bottom of the board?
Would be curious to know your construction method there. Also, what
type board are you using in the photos (if not FR4?)?

73,
- Josh / KF4YLM

On 3/12/2011 4:19 PM, adam wrote:
> http://croatia-microwave.blogspot.com/
>
> This is how it looks like on my side (quick and dirty but working).
> A few modification, other mixer, other RX MMIC, PIN diode, home-brew PCB ...
> At the end 40 mW out, and after lots of efforts I succeed to control rx mmic INA-02186 oscillations. (Do not use this MMIC on 0.062" G10/FR4) As you can notice, on the rx side I left some space for another RX MMIC amplifier. It will be much easier to control two MAR-6 on 0.062" board than one INA-02186..
>
> GL
> Adam
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq"<thepalmhq@...> wrote:
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>>
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> Yahoo! Groups Links
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218. Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-14 20:40:42 UTC
From: adam
Topic: 187 Message: 218

Hello Josh,

Yes, you are right. This is the best I can do in my "workshop" :-). Those vias are just the peace of 0.4mm dia wire through the FR4 1.6mm.
Each via is C shape and before soldering twisted with the pliers.
Maybe not so clear, but just to let you know that for INA02186 I am using 6 narrow spaced vias under the each grounding pad, to avoid self-oscillation. Same method I am using also for the other less critical MMICs just to stay on the safe side.

The board on the pictures is 1.6mm FR-4.

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, "Joshua M. Arritt" <jarritt@...> wrote:
>
> Adam,
>
> Are those "homebrew" vias to the GP on the bottom of the board?
> Would be curious to know your construction method there. Also, what
> type board are you using in the photos (if not FR4?)?
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> 73,
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>
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> > A few modification, other mixer, other RX MMIC, PIN diode, home-brew PCB ...
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> >
> > GL
> > Adam
> >
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> >> 1) I did not use the conductor to ground (instead I use only the resistor cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like you said.(I did it quickly with resistor)
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> > Yahoo! Groups Links
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219. wire gauge for pipe cap filters?

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-16 03:10:00 UTC
From: Tyler Harpster
Topic: 219 Message: 219

I'm building up the 2.3. and 3.4 GHz W1GHZ transverters. I have pipe caps soldered onto the board and I'm ready to put in the probes. I know the lengths, but what about wire diameter?

I'm going to assume it should be solid and not stranded.

Wire gauge? Anyone? Can I cut the legs off of a Radio Shack resistor and use them?

Thanks!

Tyler
KM3G

220. Re: [w1ghz-transverter-builders] wire gauge for pipe cap filters?

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-16 04:05:00 UTC
From: Zack Widup
Topic: 219 Message: 220

Hi Tyler,

I don't believe it's critical. Probably #22 or #20 wire will do fine.

I have some gold pins (with heads) that I bought a whole box of a couple years ago at Michael's. They are probably about the diameter of a #22 wire.

73, Zack W9SZ

On Tue, Mar 15, 2011 at 10:10 PM, Tyler Harpster <tyler881@...>wrote:

>
>
> I'm building up the 2.3. and 3.4 GHz W1GHZ transverters. I have pipe
> caps soldered onto the board and I'm ready to put in the probes. I know the
> lengths, but what about wire diameter?
>
> I'm going to assume it should be solid and not stranded.
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> Wire gauge? Anyone? Can I cut the legs off of a Radio Shack resistor and
> use them?
>
> Thanks!
>
> Tyler
> KM3G
>
>

221. Re: [w1ghz-transverter-builders] wire gauge for pipe cap filters?

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-16 10:38:52 UTC
From: Scott
Topic: 219 Message: 221
Attachments: 1 described; binary payloads are missing from this source WARC

On 3-16-2011 03:10, Tyler Harpster wrote:
>
> I'm building up the 2.3. and 3.4 GHz W1GHZ transverters. I have pipe
> caps soldered onto the board and I'm ready to put in the probes. I
> know the lengths, but what about wire diameter?

I use regular straight pins (from wife's sewing kit) cut to length.
Easier to get the proper amount inside the filter as the pin's head
keeps it from falling in :) They take solder just fine...

> I'm going to assume it should be solid and not stranded.
> Wire gauge? Anyone? Can I cut the legs off of a Radio Shack
> resistor and use them?

That will work as well...

N0EDV
> Thanks!
> Tyler
> KM3G
>

--

222. For Sale Transverter Kits

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-18 03:20:43 UTC
From: ke4qdl
Topic: 222 Message: 222

FS:

W1GHZ 2.3GHz transverter board and parts, including pipe caps: $30.

W1GHZ 3.4GHz transverter board and parts, including pipe caps: $30.

W1GHZ LO For 2.3GHz, 3.4GHz, partially assembled, $25.

Any interest? Please email direct: w4ti@...

223. Off Topic -- Antenna Problem

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-18 16:15:19 UTC
From: kb6uda
Topic: 223 Message: 223

Hi,

My neighbor has posted a medium size sign between my propertie and his. The side of the house where the antennas are.
The sighn asks for the neighors to help him make me take the antennas down.

I find it creepy and im worried he might vandalize my antennas or coax.

Thanks and 73
Sincerely,
Ted
kb6uda

224. Re: [w1ghz-transverter-builders] Off Topic -- Antenna Problem

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-18 22:11:06 UTC
From: Scott
Topic: 223 Message: 224
Attachments: 1 described; binary payloads are missing from this source WARC

Mount a 6 or 8 foot dish in the yard and aim it right at his house and
go out and buy a 2304 transverter and high power amp (say 150W) and beam
it right at his house. Maybe over time he will go blind and won't worry
about ugly antennas. Maybe beat him at his own game. Check and see if
his property is zoned for billboards. If not, take it up with the city
council. You always have PRB-1 to fall back on.

N0EDV

On 3-18-2011 16:15, kb6uda wrote:
>
> Hi,
>
> My neighbor has posted a medium size sign between my propertie and
> his. The side of the house where the antennas are.
> The sighn asks for the neighors to help him make me take the antennas
> down.
>
> I find it creepy and im worried he might vandalize my antennas or coax.
>
> Thanks and 73
> Sincerely,
> Ted
> kb6uda
>
>

--

225. RE: [w1ghz-transverter-builders] Off Topic -- Antenna Problem

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-18 23:16:29 UTC
From: Tom Sneden, K6VCR
Topic: 223 Message: 225
Attachments: 2 described; binary payloads are missing from this source WARC

Ted,

How big is your antenna farm?

Tom

From: w1ghz-transverter-builders@yahoogroups.com
[mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of kb6uda
Sent: Friday, March 18, 2011 9:15 AM
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] Off Topic -- Antenna Problem

Hi,

My neighbor has posted a medium size sign between my propertie and his. The
side of the house where the antennas are.
The sighn asks for the neighors to help him make me take the antennas down.

I find it creepy and im worried he might vandalize my antennas or coax.

Thanks and 73
Sincerely,
Ted
kb6uda

_____ Information from ESET NOD32 Antivirus, version of virus signature
database 5966 (20110318) _____

The message was checked by ESET NOD32 Antivirus.

http://www.eset.com

226. Re: [w1ghz-transverter-builders] Off Topic -- Antenna Problem

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-18 23:37:37 UTC
From: Ted M
Topic: 223 Message: 226

Hi,

Not counting the Dipole there are seven verticals. They are on 15 foot masts desighned for TV antennas hooked to the side of the house. No antenna is taller than 10 foot. Several are shorter. The 50 Mhz 902 MHz and 1.2 Ghz are about 10 feet tall. They are all Diamond and Commet antennas except for the 50 MHz which is a Cushcraft vertical.

Because im getting into UHF and VHF P-25 digital radio another antenna will go up in a few weeks. It will be a Diamond X-50 I got from my mom who died in 2009.

My dad is a former NASA enginer and has inspected each antenna for safety.

73
Ted
kbt6uda

From: "Tom Sneden, K6VCR" <k6vcr@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Fri, March 18, 2011 4:16:29 PM
Subject: RE: [w1ghz-transverter-builders] Off Topic -- Antenna Problem

Ted,

How big is your antenna farm?

Tom

From:w1ghz-transverter-builders@yahoogroups.com
[mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of kb6uda
Sent: Friday, March 18, 2011 9:15 AM
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] Off Topic -- Antenna Problem

Hi,

My neighbor has posted a medium size sign between my propertie and his. The side of the house where the antennas are.
The sighn asks for the neighors to help him make me take the antennas down.

I find it creepy and im worried he might vandalize my antennas or coax.

Thanks and 73
Sincerely,
Ted
kb6uda

_____ Information from ESET NOD32 Antivirus, version of virus signature database 5966 (20110318) _____

The message was checked by ESET NOD32 Antivirus.

http://www.eset.com

_____ Information from ESET NOD32 Antivirus, version of virus signature database 5967 (20110318) _____

The message was checked by ESET NOD32 Antivirus.

http://www.eset.com

227. Re: Off Topic -- Antenna Problem

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-19 13:57:36 UTC
From: Jason W6IEE
Topic: 223 Message: 227

Hi Ted,

Whether you like it or not, you are already at war with that neighbor. If you stay on the high road, you can win this while staying polite, and "winning the hearts and minds" of your neighbors, while letting this guy make himself look bad.

N0EDV was joking, if you didn't notice. What he suggested if taken literally _could_ lead to you being broke and homeless for the rest of your life! Don't do anything that'll get you sued.

If he's putting up signs instead of politely trying to discuss things with you directly, he's already placed himself into "nutjob" territory. A good neighbor will put up with a few antennas, and just be glad you aren't having noisy parties every weekend.

Do everything you can to keep the street-viewable front of your property looking nice! Nicer than his, if possible.

The law is on your side, but proving that will take some effort.

The best possible advice in the world is to look up your local ARRL representatives and ask THEM for help and advice, and follow it to the T.

Good luck, let us know how it pans out.

Been there and done that, and 73,
Jason W6IEE

--
(Formerly KF6PQT)
AMI #1625 SKCC #3768 GQRP #12446
http://en.wikipedia.org/wiki/Junk_box
http://w6iee.dyndns.org
http://www.flickr.com/photos/kf6pqt/

228. Re: [w1ghz-transverter-builders] Re: Off Topic -- Antenna Problem

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-19 14:16:15 UTC
From: Scott
Topic: 223 Message: 228

On 3-19-2011 13:57, Jason W6IEE wrote:
>
> Hi Ted,
>
> Whether you like it or not, you are already at war with that neighbor.
> If you stay on the high road, you can win this while staying polite,
> and "winning the hearts and minds" of your neighbors, while letting
> this guy make himself look bad.
>
> N0EDV was joking, if you didn't notice. What he suggested if taken
> literally _could_ lead to you being broke and homeless for the rest of
> your life! Don't do anything that'll get you sued.
>

Correct. I wish there WAS a "sarcasm" font. The point (just to
clarify) is that PRB-1 is on your side. You should be able to find info
about it on the ARRL website if you are unfamiliar with PRB-1.

N0EDV
>
>
> Yahoo! Groups
> <http://groups.yahoo.com/;_ylc=X3oDMTJlZnVnNDFuBF9TAzk3MzU5NzE0BGdycElkAzUzNjAxOTA0BGdyc
HNwSWQDMTcwNTA2MzEwOARzZWMDZnRyBHNsawNnZnAEc3RpbWUDMTMwMDU0MzA2NA-->
>
> Switch to: Text-Only
> <mailto:w1ghz-transverter-builders-traditional@yahoogroups.com?subject=Change%20Delivery
%20Format:%20Traditional>,
> Daily Digest
> <mailto:w1ghz-transverter-builders-digest@yahoogroups.com?subject=Email%20Delivery:%20Di
gest>
> . Unsubscribe
> <mailto:w1ghz-transverter-builders-unsubscribe@yahoogroups.com?subject=Unsubscribe>
> . Terms of Use <http://docs.yahoo.com/info/terms/>
> .
>
>

229. 1296 + 903 Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-28 01:10:00 UTC
From: ke4qdl
Topic: 229 Message: 229

Hi All,

What would be the best way to get more output out of the 1296 transverter? I'd like to get a watt out in order to drive a G4BAO 45 watt amplifier. What's the best way to go about this? Buffer amplifier of some sort?

Speaking of a buffer amplifier, I'd like to do the same sort of thing with my 902 amp. I have one of the motorola amps that needs 3-4 watts to run at full speed. What's the best way to get the drive out from a W1GHZ transverter to one of these amps (understanding that another stage/bit of kit needs to be built)?

Any help is most appreciated!

Best,
Chase

230. Re: PIN diode modification for transmit/receive splitter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-28 09:19:06 UTC
From: adam
Topic: 187 Message: 230

Finished with the mods. on the 23cm rover transverter, some ideas, text, photos and videos on:

http://croatia-microwave.blogspot.com/2011/03/yet-another-w1ghz-rover-transverter.html

9A4QV, Adam

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> Hello Josh,
>
> Yes, you are right. This is the best I can do in my "workshop" :-). Those vias are just the peace of 0.4mm dia wire through the FR4 1.6mm.
> Each via is C shape and before soldering twisted with the pliers.
> Maybe not so clear, but just to let you know that for INA02186 I am using 6 narrow spaced vias under the each grounding pad, to avoid self-oscillation. Same method I am using also for the other less critical MMICs just to stay on the safe side.
>
> The board on the pictures is 1.6mm FR-4.
>
> Adam
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "Joshua M. Arritt" <jarritt@> wrote:
> >
> > Adam,
> >
> > Are those "homebrew" vias to the GP on the bottom of the board?
> > Would be curious to know your construction method there. Also, what
> > type board are you using in the photos (if not FR4?)?
> >
> > 73,
> > - Josh / KF4YLM
> >
> >
> > On 3/12/2011 4:19 PM, adam wrote:
> > > http://croatia-microwave.blogspot.com/
> > >
> > > This is how it looks like on my side (quick and dirty but working).
> > > A few modification, other mixer, other RX MMIC, PIN diode, home-brew PCB ...
> > > At the end 40 mW out, and after lots of efforts I succeed to control rx mmic INA-02186 oscillations. (Do not use this MMIC on 0.062" G10/FR4) As you can notice, on the rx side I left some space for another RX MMIC amplifier. It will be much easier to control two MAR-6 on 0.062" board than one INA-02186..
> > >
> > > GL
> > > Adam

> > >
> > > --- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq"<thepalmhq@> wrote:
> > >> Per a conversation with Adam, 9A4QV, I have posted a proposed schematic, under Photos section and also under Files, of a modification that would reduce the loss in the splitter section through the use of PIN diodes. Feedback on this would be welcome. Adam did not do this full modification, but a subset of it and still saw noticeable improvement. Here is his description of what he did:
> > >>
> > >> ----------
> > >>
> > >> 1) I did not use the conductor to ground (instead I use only the resistor cca 470 ohm or 560 ohm). It is better to use the conductor cca 100 nH like you said.(I did it quickly with resistor)
> > >>
> > >> 2) I did not use the RF chokes in the diode bias, but you are right it is better to use it (cca 100 nH) Don't forget to ground the rf choke with the 1nF capacitor just between the choke and the bias resistor!
> > >>
> > >> 3) Current limiting resistors 680 ohm
> > >>
> > >> 4) I used old BA-379 diodes, also BA-595 are ok. Looking the datasheet of your proposed PIN diodes it looks like both are ok.
> > >>
> > >> So to check this quickly I just used the resistors without the chokes.
> > >> How I did it quickly and dirty:
> > >>
> > >> 1) replace the resistors with pin diodes.
> > >> 2) ground the diodes with 470 ohm (can be done from the top side)
> > >> 3) drill the holes on the pad where diodes and 18 pF are soldered.
> > >> 4) where drilled (on the ground side of the PCB) with exacto knife i made 2 pads
> > >> 5) soldered C wire (to create via) through the two holes
> > >> 6) soldered 680 ohms SMD resistors on the cutted pads
> > >> 7) soldered SMD 1nF to ground from the second pad
> > >> 8) connect this pad (where 1nF and 680 ohm connected) with the wire to the +RX and the other to the +TX
> > >>
> > >
> > >
> > >
> > > ----------
> > >
> > > Yahoo! Groups Links
> > >
> > >
> > >
> > >
> > >
> >
>

231. Re: [w1ghz-transverter-builders] 1296 + 903 Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-28 11:14:48 UTC
From: Scott
Topic: 229 Message: 231
Attachments: 1 described; binary payloads are missing from this source WARC

If you can get your hands on a M67715 RF power module for 1296, that
could be used as a 1W driver for the bigger amp.

http://www.rfparts.com/module_m.html#m67702

For 902, if you can find a PF0032 module, it should work nicely as a
driver amp.
http://www.datasheetarchive.com/pdf/getfile.php?dir=Datasheets-308&file=25904.pdf&scan=

The /RA13H8891MB module (902 MHz) is designed for FM, but the datasheet
says you can set it up for linear use. Haven't had time to experiment
with this module yet, so I'm not sure how easy it is to do that./
http://www.rfparts.com/module_sau-sav.html

Sorry for the goofy font sizes...cut and paste works screwy in my email
program! ;)

N0EDV

On 3-28-2011 01:10, ke4qdl wrote:
>
> Hi All,
>
> What would be the best way to get more output out of the 1296
> transverter? I'd like to get a watt out in order to drive a G4BAO 45
> watt amplifier. What's the best way to go about this? Buffer amplifier
> of some sort?
>
> Speaking of a buffer amplifier, I'd like to do the same sort of thing
> with my 902 amp. I have one of the motorola amps that needs 3-4 watts
> to run at full speed. What's the best way to get the drive out from a
> W1GHZ transverter to one of these amps (understanding that another
> stage/bit of kit needs to be built)?
>
> Any help is most appreciated!
>
> Best,
> Chase
>
>

--

232. Re: [w1ghz-transverter-builders] 1296 + 903 Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-28 12:48:28 UTC
From: Joshua M. Arritt
Topic: 229 Message: 232

On 3/28/2011 7:14 AM, Scott wrote:
>
>
> For 902, if you can find a PF0032 module, it should work nicely as a
> driver amp.

I've had success with a PF0030 as well on the 900MHz dude despite the data sheet claiming the ham band to be out of spec for the device. Simply cut the PA out of an old bag phone using this device and paid some careful attention to grounding to get it to play nice.

MiniKits (www.minikits.com.au) from Australia also sells a 23cm 1-watt PHEMT amp kit for about $35 US shipped which I installed in my 23cm rig. I'm seeing about +29dBm output there -- straight to the antenna. This could also drive a Mitsubishi "brick" as mentioned before....

- Josh / KF4YLM

233. Re: 1296 + 903 Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-28 13:39:55 UTC
From: thepalmhq
Topic: 229 Message: 233

Here are a couple of pretty inexpensive 900 MHz modules on EBay:

http://cgi.ebay.com/Motorola-SHW5151-85Y12-5Watt-700-900MHz-LDMOS-Power-\
Amp-/190379696006?pt=LH_DefaultDomain_0&hash=item2c53839f86
<http://cgi.ebay.com/Motorola-SHW5151-85Y12-5Watt-700-900MHz-LDMOS-Power\
-Amp-/190379696006?pt=LH_DefaultDomain_0&hash=item2c53839f86>

(The guy above will take a little less than the posted price.)

http://cgi.ebay.com/Motorola-SHW5151-UHF-Amplifier-Module-5W-700-900MHz-\
New-/150207117776?pt=LH_DefaultDomain_0&hash=item22f90ab9d0
<%20http://cgi.ebay.com/Motorola-SHW5151-UHF-Amplifier-Module-5W-700-900\
MHz-New-/150207117776?pt=LH_DefaultDomain_0&hash=item22f90ab9d0>

I bought a few of these and tried one a couple of weeks ago. I did get
5 watts or so out of it......until I let the smoke out by over-biasing
it :o(. So keep the bias voltage under 3.5 VDC and you should be good
to go. I hope to get another one of these going later this week.

Also for 900 MHz, here is the e-mail of a guy who has some Motorola
stripline amp sets:

I obtained a number of UHF strip-line ckt boards containing in part, a
driver transistor and power amplifier transistor. Each device is on it's
own strip-line, the two striplines being almost identical. I am offering
ONE of EACH strip-line device,(a set of two) for $8, plus THREE 44 cent
postage stamps, (in the 50 states). The transistors are the SRF 4318
driver, and the MRF 842 power amplifier. Units have surface mount RF
caps, resistor and ferrite beads. The MRF 842 data-sheet, pin-outs, and
test ckt is available on the web, the two devices are very similar
except for driving levels. About 2 watts input for 30 watts output (when
both are utilized.)(13.8 vdc)The Motorola data sheet has a test ckt for
the MRF 842, and it appears to be identical to the strip-line! Here is a
chance to get something going on our 900 MHz band, or use the UHF
transistors in another project at lower frequencies. Take THREE sets for
a $20 bill, SHIPPED FREE in the 50 states. Contact wa2vqw@... if
interested.

On 1296, I was thinking of just using two G4BAO amps, one to drive the
other. They're supposed to be good for around 14 dB of gain, That's
obviously not driving the first one to its potential, but it's a fairly
inexpensive solution. I haven't tried it yet.

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, "Joshua M. Arritt"
<jarritt@...> wrote:
>
> On 3/28/2011 7:14 AM, Scott wrote:
> >
> >
> > For 902, if you can find a PF0032 module, it should work nicely as a
> > driver amp.
>
> I've had success with a PF0030 as well on the 900MHz dude despite the
> data sheet claiming the ham band to be out of spec for the device.
> Simply cut the PA out of an old bag phone using this device and paid
> some careful attention to grounding to get it to play nice.
>
> MiniKits (www.minikits.com.au) from Australia also sells a 23cm 1-watt
> PHEMT amp kit for about $35 US shipped which I installed in my 23cm
> rig. I'm seeing about +29dBm output there -- straight to the antenna.
> This could also drive a Mitsubishi "brick" as mentioned before....
>
> - Josh / KF4YLM

234. Microwave group

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-30 17:29:53 UTC
From: wb8deg
Topic: 234 Message: 234

Does anyone know if there is a microwave group active in SE Michigan? I know there are several hams active on 10 GHZ but is there a formal or informal group working together?

235. Re: [w1ghz-transverter-builders] Microwave group

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-30 17:40:09 UTC
From: Zack Widup
Topic: 234 Message: 235

There is an informal group of sorts mainly including people in westerm Michigan, Wisconsin and Illinois. Mostly we exchange e-mails with a long list of e-mail addresses in the Cc: column. Usually we have things to talk about before Sprints, VHF contests and the 10GHz contest. Sometimes when the Hepburn forecast suggests something big coming in Michican, Wisconsin or Illinois.

I don't know of any formal group from that area myself.

73, Zack W9SZ

On Wed, Mar 30, 2011 at 12:29 PM, wb8deg
<john.daugherty4708@sbcglobal.net>wrote:

>
>
> Does anyone know if there is a microwave group active in SE Michigan? I
> know there are several hams active on 10 GHZ but is there a formal or
> informal group working together?
>
>
>

236. Re: [w1ghz-transverter-builders] Microwave group

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-30 22:15:26 UTC
From: Scott
Topic: 234 Message: 236
Attachments: 1 described; binary payloads are missing from this source WARC

And rain/snow scatter!!

N0EDV

On 3-30-2011 17:40, Zack Widup wrote:
>
> There is an informal group of sorts mainly including people in westerm
> Michigan, Wisconsin and Illinois. Mostly we exchange e-mails with a
> long list of e-mail addresses in the Cc: column. Usually we have
> things to talk about before Sprints, VHF contests and the 10GHz
> contest. Sometimes when the Hepburn forecast suggests something big
> coming in Michican, Wisconsin or Illinois.
>
> I don't know of any formal group from that area myself.
>
> 73, Zack W9SZ
>
>
>
>

--

237. Re: [w1ghz-transverter-builders] Microwave group

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-31 01:49:38 UTC
From: aa9il@sbcglobal.net
Topic: 234 Message: 237

Hi all
Also there is the NIMRODS group on yahoogroups. I have been a bit
absent but have been working (or parts gathering) for our club
effort in june. 902mhz high power then 1296
73 de Mike

--- On Wed, 3/30/11, Zack Widup <w9sz.zack@...> wrote:

From: Zack Widup <w9sz.zack@gmail.com>
Subject: Re: [w1ghz-transverter-builders] Microwave group
To: w1ghz-transverter-builders@yahoogroups.com
Date: Wednesday, March 30, 2011, 12:40 PM

There is an informal group of sorts mainly including people in westerm Michigan, Wisconsin and Illinois. Mostly we exchange e-mails with a long list of e-mail addresses in the Cc: column. Usually we have things to talk about before Sprints, VHF contests and the 10GHz contest. Sometimes when the Hepburn forecast suggests something big coming in Michican, Wisconsin or Illinois.

I don't know of any formal group from that area myself.

73, Zack W9SZ

On Wed, Mar 30, 2011 at 12:29 PM, wb8deg <john.daugherty4708@...> wrote:

Does anyone know if there is a microwave group active in SE Michigan? I know there are several hams active on 10 GHZ but is there a formal or informal group working together?

238. Re: [w1ghz-transverter-builders] Microwave group

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-31 02:30:42 UTC
From: Zack Widup
Topic: 234 Message: 238

I thought about the NIMRODS (Northern Illinois Microwave Radio Operators and Developers Society - catchy, eh?) group but I can't think of anyone in it who is in eastern MI. Maybe there is. There are a couple people in Michigan on it that I know but they are in western MI.

If you're looking for people to work, you might want to get in touch with Mark K8MD or Bob K8TQK. Bob is in Ohio but has quite a station.

73, Zack W9SZ

On Wed, Mar 30, 2011 at 8:49 PM, <aa9il@...> wrote:

>
>
> Hi all
> Also there is the NIMRODS group on yahoogroups. I have been a bit
> absent but have been working (or parts gathering) for our club
> effort in june. 902mhz high power then 1296
> 73 de Mike
>
>
> --- On *Wed, 3/30/11, Zack Widup <w9sz.zack@gmail.com>* wrote:
>
>
> From: Zack Widup <w9sz.zack@...>
> Subject: Re: [w1ghz-transverter-builders] Microwave group
> To: w1ghz-transverter-builders@yahoogroups.com
> Date: Wednesday, March 30, 2011, 12:40 PM
>
>
>
> There is an informal group of sorts mainly including people in westerm
> Michigan, Wisconsin and Illinois. Mostly we exchange e-mails with a long
> list of e-mail addresses in the Cc: column. Usually we have things to talk
> about before Sprints, VHF contests and the 10GHz contest. Sometimes when the
> Hepburn forecast suggests something big coming in Michican, Wisconsin or
> Illinois.
>
> I don't know of any formal group from that area myself.
>
> 73, Zack W9SZ
>
>
> On Wed, Mar 30, 2011 at 12:29 PM, wb8deg <john.daugherty4708@...<http://us.mc1800.mail.yahoo.com/mc/compose?to=john.daugherty4708@...>
> > wrote:

>
>
> Does anyone know if there is a microwave group active in SE Michigan? I
> know there are several hams active on 10 GHZ but is there a formal or
> informal group working together?
>
>
>
>

239. Re: [w1ghz-transverter-builders] Microwave group

Yahoo group: w1ghz-transverter-builders
Date: 2011-03-31 16:52:43 UTC
From: James French
Topic: 234 Message: 239

Hello John.

There is no 'formal' group in Michigan, let alone SouthEast Michigan for microwaves. Just a little group of informally connected operators like Zack has mentioned.

I usually start 'rallying' the 'troops' just after Dayton to start making plans for the VHF and microwave activities in Southern Ontario, Northern Ohio, and Michigan for each year through an informal email list plus I try to maintain an updated blog at:
http://w8iss.wordpress.com
That really doesn't see activity until mid- July but I do post to it occasionally during the year.

Is there something that I can answer for you or point you in the right direction for?

James W8ISS
Lincoln Park, MI
=====
On Wednesday 30 March 2011 13:29:53 you wrote:
> Does anyone know if there is a microwave group active in SE Michigan? I
> know there are several hams active on 10 GHZ but is there a formal or
> informal group working together?

240. 13cm W1GHZ Rover transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-04-05 09:04:21 UTC
From: adam
Topic: 240 Message: 240

It's working nice, of course with some modifications for the EU 13cm band.

http://croatia-microwave.blogspot.com/2011/04/going-up-to-13cm-w1ghz-rover-modified.html

73, 9A4QV

241. Re: 13cm W1GHZ Rover transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-04-07 13:22:12 UTC
From: thepalmhq
Topic: 240 Message: 241

Adam,

This is a great write-up. I really appreciate the effort you have put into documenting your projects. I have learned a lot and I'm sure others have as well. I'm particularly encouraged to hear actual QSOs being made with the W1GHZ transverters. So by all means keep up the great presentations of your work!

One question I had is whether you did the PIN diode modification in the receive section of your 13 cm transverter, as you did on 1296 MHz?

Thanks and 73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> It's working nice, of course with some modifications for the EU 13cm band.
>
> http://croatia-microwave.blogspot.com/2011/04/going-up-to-13cm-w1ghz-rover-modified.html
>
> 73, 9A4QV
>

242. Re: 13cm W1GHZ Rover transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-04-07 16:51:37 UTC
From: adam
Topic: 240 Message: 242

Hello David,

No, I did not made the PIN diode modification on the 13cm version. It is a good idea too. I will not build another "hacked" w1ghz version for 13cm. Instead I am preparing even "lighter" version with the PCB printed no tune filters (without Pipecaps), but not for this season.

There are some other videos on my youtube channel showin the w1ghz 13cm qso-s (Mostly Italian language).

I still have to complete my new 24GHz transverter and a new 6cm transverter with plenty microwave projects on the ATV...

The idea of my blog was to show that homebrewing microwave equipment is not the "Rocket science". If this can help to bring some more people on the microwave frequencies - that's OK.

What I am thinking about is a short post where I will show my "LEGO microwave bricks" where in a few minutes I can assemble any project covering 900 MHz, 1.2, 1.4, 2.4, 3.4 GHz. Upconverter, downconverter, ATV RX/TX etc...

Best regards,
presently again from Nigeria

--- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq" <thepalmhq@...> wrote:
>
>
>
> Adam,
>
> This is a great write-up. I really appreciate the effort you have put into documenting your projects. I have learned a lot and I'm sure others have as well. I'm particularly encouraged to hear actual QSOs being made with the W1GHZ transverters. So by all means keep up the great presentations of your work!
>
> One question I had is whether you did the PIN diode modification in the receive section of your 13 cm transverter, as you did on 1296 MHz?
>
> Thanks and 73,
>
> David W9HQ
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@> wrote:
> >
> > It's working nice, of course with some modifications for the EU 13cm band.
> >

> >
http://croatia-microwave.blogspot.com/2011/04/going-up-to-13cm-w1ghz-rover-modified.html
> >
> > 73, 9A4QV
> >
>

243. 23 cm patch antenna

Yahoo group: w1ghz-transverter-builders
Date: 2011-04-20 16:32:44 UTC
From: w1kilofoxtrot
Topic: 243 Message: 243

I just built a trial of a 1296 MHz patch antenna I designed in HFSS. I used galvanized flashing, which soldered to the SMA connector easily. Unfortunately, it is too flimsy to actually use :-(
Fortunately, it had a near perfect match to 50 ohms, (return loss of >-40 dB) at a slightly lower than design frequency, so it seems the simulation setting the probe point was pretty good. It simulates at 9.3dBi, so looks like a possible rover, maybe when used in a group of 4...

So, two questions:
First, is this the right place to talk about this? If not, can you suggest a venue?

(Ok, three questions...)

Last, has anyone tried building a patch on galvanized stock? What gauge?

(OK, four, but now I quit...)

73,
Steve
W1KF

244. Alternative on LO - W1GHZ Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-04-25 12:13:47 UTC
From: Roberto
Topic: 244 Message: 244

Hello,all alternative LO

http://home.comcast.net/~kd7ts/html/SI4133/SI4112.html

73 de iw5bsf Roberto

245. Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-04 12:07:48 UTC
From: w1kilofoxtrot
Topic: 245 Message: 245

I've been poring over the history of the group, trying to determine the 'best' first receive stage. I plan on adding an external preamp, but not right away. There have been a number of devices proposed, some with great specs, but possible stability issues. Right now, I'm leaning toward a MAR-6, as at least one person (Adam?) has suggested.

Any other thoughts?

73,
Steve
W1KF

246. Re: [w1ghz-transverter-builders] Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-04 13:25:53 UTC
From: Zack Widup
Topic: 245 Message: 246

I tried an SGA4586 and it oscillated in that circuit. I am not sure why; I have used it on other circuit boards and didn't have that problem. I settled on the original INA10386 which seems to do quite well.

An MAR-6 should also work OK. The INA-10386 has a little more gain and has a flat response from 0.1 to 1.5 GHz.

Another possibility is the INA-02186 which has a better NF and more gain than the 10386 but is only rated to 1 GHz. So you're close to the edge on 902.

73, Zack W9SZ

On 5/4/11, w1kilofoxtrot <w1kf@...> wrote:
> I've been poring over the history of the group, trying to determine the
> 'best' first receive stage. I plan on adding an external preamp, but not
> right away. There have been a number of devices proposed, some with great
> specs, but possible stability issues. Right now, I'm leaning toward a MAR-6,
> as at least one person (Adam?) has suggested.
>
> Any other thoughts?
>
> 73,
> Steve
> W1KF
>
>

247. Re: Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-04 20:57:50 UTC
From: w1kilofoxtrot
Topic: 245 Message: 247

Shame on me, I forgot to mention I'm concentrating on 1296 as I learn my way, coming up from the DC bands. I have the ability to test and develop up through 6 GHz, but I'm taking little steps.

So, the MAR-6 limit of 1.5G should not be a factor. What is interesting is that various Minicircuit documents seem to reflect slightly different NFs. And, since there's a preamp in my future, I'm just trying to get good enough to get started.

I may get a few 10386's, and try a comparison...

Thanks for the thoughts!

73,
Steve
W1KF

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> I tried an SGA4586 and it oscillated in that circuit. I am not sure
> why; I have used it on other circuit boards and didn't have that
> problem. I settled on the original INA10386 which seems to do quite
> well.
>
> An MAR-6 should also work OK. The INA-10386 has a little more gain and
> has a flat response from 0.1 to 1.5 GHz.
>
> Another possibility is the INA-02186 which has a better NF and more
> gain than the 10386 but is only rated to 1 GHz. So you're close to the
> edge on 902.
>
> 73, Zack W9SZ
>
>
> On 5/4/11, w1kilofoxtrot <w1kf@...> wrote:
> > I've been poring over the history of the group, trying to determine the
> > 'best' first receive stage. I plan on adding an external preamp, but not
> > right away. There have been a number of devices proposed, some with great
> > specs, but possible stability issues. Right now, I'm leaning toward a MAR-6,
> > as at least one person (Adam?) has suggested.
> >
> > Any other thoughts?
> >
> > 73,
> > Steve
> > W1KF
> >

> >
>

248. Re: [w1ghz-transverter-builders] Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-04 21:43:54 UTC
From: Scott
Topic: 245 Message: 248
Attachments: 1 described; binary payloads are missing from this source WARC

The INA-10386 is what Paul designed (902 & 1296) with if I recall. They used to be available from DEMI, but not so any longer. Fortunately, they are available for cheap ($2.85 each) from Dan's small parts and good to 1.8 GHz. Gain minimum 23 dB, typical 26 dB. N.F. 3.8 dB at 1.5 GHz. Not deep space probe quality, but good for Paul's 902 and 1296 transverters.

On 5-4-2011 12:07, w1kilofoxtrot wrote:
>
> I've been poring over the history of the group, trying to determine
> the 'best' first receive stage. I plan on adding an external preamp,
> but not right away. There have been a number of devices proposed, some
> with great specs, but possible stability issues. Right now, I'm
> leaning toward a MAR-6, as at least one person (Adam?) has suggested.
>
> Any other thoughts?
>
> 73,
> Steve
> W1KF
>
>

--

249. Re: [w1ghz-transverter-builders] Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-04 21:44:42 UTC
From: Scott
Topic: 245 Message: 249
Attachments: 1 described; binary payloads are missing from this source WARC

Oops, forgot the link to Dan's small parts before....

http://www.danssmallpartsandkits.net/

On 5-4-2011 12:07, w1kilofoxtrot wrote:
>
> I've been poring over the history of the group, trying to determine
> the 'best' first receive stage. I plan on adding an external preamp,
> but not right away. There have been a number of devices proposed, some
> with great specs, but possible stability issues. Right now, I'm
> leaning toward a MAR-6, as at least one person (Adam?) has suggested.
>
> Any other thoughts?
>
> 73,
> Steve
> W1KF
>
>

--

250. Re: [w1ghz-transverter-builders] Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-04 21:58:09 UTC
From: Zack Widup
Topic: 245 Message: 250
Attachments: 1 described; binary payloads are missing from this source WARC

Yes, I'm using a WA5VJB/WD5AGO 2-stage preamp ahead of the receive section on 903. It actually has too much gain at about 35 dB. NF of the preamp is great, though; it's supposed to be around 0.35 dB.

73, Zack W9SZ

On Wed, May 4, 2011 at 4:43 PM, Scott <acepilot@...> wrote:

> The INA-10386 is what Paul designed (902 & 1296) with if I recall. They
> used to be available from DEMI, but not so any longer. Fortunately, they
> are available for cheap ($2.85 each) from Dan's small parts and good to 1.8
> GHz. Gain minimum 23 dB, typical 26 dB. N.F. 3.8 dB at 1.5 GHz. Not deep
> space probe quality, but good for Paul's 902 and 1296 transverters.
>
> On 5-4-2011 12:07, w1kilofoxtrot wrote:
>
>
>
> I've been poring over the history of the group, trying to determine the
> 'best' first receive stage. I plan on adding an external preamp, but not
> right away. There have been a number of devices proposed, some with great
> specs, but possible stability issues. Right now, I'm leaning toward a MAR-6,
> as at least one person (Adam?) has suggested.
>
> Any other thoughts?
>
> 73,
> Steve
> W1KF
>
>
> --
>

251. Re: [w1ghz-transverter-builders] Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-04 23:36:20 UTC
From: Dan Habecker
Topic: 245 Message: 251
Attachments: 1 described; binary payloads are missing from this source WARC

I put a SGA4586 in my 1296MHz transverter and it seems to be working fine.
I have a net gain of about 0dB. I'm hoping in the next few days to have
some time on a noise figure box to see if it's good enough or if I need to
do something better. (I intend to put a G4DDK preamp in front of this.)

73,
Dan W9EQ

On Wed, May 4, 2011 at 5:58 PM, Zack Widup <w9sz.zack@...m> wrote:

>
>
> Yes, I'm using a WA5VJB/WD5AGO 2-stage preamp ahead of the receive section
> on 903. It actually has too much gain at about 35 dB. NF of the preamp is
> great, though; it's supposed to be around 0.35 dB.
>
> 73, Zack W9SZ
>
>
>
> On Wed, May 4, 2011 at 4:43 PM, Scott <acepilot@bloomer.net> wrote:
>
>> The INA-10386 is what Paul designed (902 & 1296) with if I recall. They
>> used to be available from DEMI, but not so any longer. Fortunately, they
>> are available for cheap ($2.85 each) from Dan's small parts and good to 1.8
>> GHz. Gain minimum 23 dB, typical 26 dB. N.F. 3.8 dB at 1.5 GHz. Not deep
>> space probe quality, but good for Paul's 902 and 1296 transverters.
>>
>> On 5-4-2011 12:07, w1kilofoxtrot wrote:
>>
>>
>>
>> I've been poring over the history of the group, trying to determine the
>> 'best' first receive stage. I plan on adding an external preamp, but not
>> right away. There have been a number of devices proposed, some with great
>> specs, but possible stability issues. Right now, I'm leaning toward a MAR-6,
>> as at least one person (Adam?) has suggested.
>>
>> Any other thoughts?
>>
>> 73,
>> Steve
>> W1KF
>>
>>

>> --
>>
>
>
>

252. Re: [w1ghz-transverter-builders] Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-05 00:40:45 UTC
From: Scott
Topic: 245 Message: 252
Attachments: 2 described; binary payloads are missing from this source WARC

Here's another module that shows promise, but it might take a bit of wizardry to get all the ground pins grounded. Getting V+ to it wouldn't be too hard using a 4 or 5 turn air core choke (wound on a 1/8" drill bit) between pin 7 and the bias resistor (75 ohm, 1/4W) with Vcc of 8V as used in the W1GHZ transverter. For all the grounded pins, one could drill small holes through the circuit board near each pin that needs to be grounded and solder short jumpers to the pin and to the ground plane on the back of the PC board.

http://www.minicircuits.com/pdfs/TAMP-960LN+.pdf

N0EDV

On 5-4-2011 23:36, Dan Habecker wrote:
>
> I put a SGA4586 in my 1296MHz transverter and it seems to be working
> fine. I have a net gain of about 0dB. I'm hoping in the next few
> days to have some time on a noise figure box to see if it's good
> enough or if I need to do something better. (I intend to put a G4DDK
> preamp in front of this.)
>
> 73,
> Dan W9EQ
>
>
> On Wed, May 4, 2011 at 5:58 PM, Zack Widup <w9sz.zack@...
> <mailto:w9sz.zack@...>> wrote:
>
> Yes, I'm using a WA5VJB/WD5AGO 2-stage preamp ahead of the receive
> section on 903. It actually has too much gain at about 35 dB. NF
> of the preamp is great, though; it's supposed to be around 0.35 dB.
>
> 73, Zack W9SZ
>
>
>
>
>
> On Wed, May 4, 2011 at 4:43 PM, Scott <acepilot@...
> <mailto:acepilot@...>> wrote:
>
> The INA-10386 is what Paul designed (902 & 1296) with if I
> recall. They used to be available from DEMI, but not so any
> longer. Fortunately, they are available for cheap ($2.85
> each) from Dan's small parts and good to 1.8 GHz. Gain
> minimum 23 dB, typical 26 dB. N.F. 3.8 dB at 1.5 GHz. Not

> deep space probe quality, but good for Paul's 902 and 1296
> transverters.
>
> On 5-4-2011 12:07, w1kilofoxtrot wrote:
>>
>> I've been poring over the history of the group, trying to
>> determine the 'best' first receive stage. I plan on adding an
>> external preamp, but not right away. There have been a number
>> of devices proposed, some with great specs, but possible
>> stability issues. Right now, I'm leaning toward a MAR-6, as
>> at least one person (Adam?) has suggested.
>>
>> Any other thoughts?
>>
>> 73,
>> Steve
>> W1KF
>>
>
> --
>
>
>
>

--

253. Re: Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-09 07:21:27 UTC
From: adam
Topic: 245 Message: 253

Hello guys,

Just came back from the spring VHF & up contest where tested new modified rover xverters for 23 and 13cm from the hill location.

RX MMIC, originally INA10386 will work fine.
INA 02186 will oscillate due to PCB thickness, that board is not good for INA 02186.
MAR-6 will work ok in this board. I test MAR-6 in my modified xverter (432MHz IF) with extra BGF540x board (10db gain LNA) working fine.
The same setup but with the AD6IW latest LNA is working ufb.

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> Oops, forgot the link to Dan's small parts before....
>
> http://www.danssmallpartsandkits.net/
>
>
>
> On 5-4-2011 12:07, w1kilofoxtrot wrote:
> >
> > I've been poring over the history of the group, trying to determine
> > the 'best' first receive stage. I plan on adding an external preamp,
> > but not right away. There have been a number of devices proposed, some
> > with great specs, but possible stability issues. Right now, I'm
> > leaning toward a MAR-6, as at least one person (Adam?) has suggested.
> >
> > Any other thoughts?
> >
> > 73,
> > Steve
> > W1KF
> >
> >
>
> --
>

254. Re: Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-09 13:13:59 UTC
From: w1kilofoxtrot
Topic: 245 Message: 254

Many thanks for all the comments. I've got the MAR-6 handy, but will get some 10386 as well. It will all depend on what arrives before I'm ready to solder the RX part in place!

73,
Steve
W1KF

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> Hello guys,
>
> Just came back from the spring VHF & up contest where tested new modified rover xverters for 23 and 13cm from the hill location.
>
> RX MMIC, originally INA10386 will work fine.
> INA 02186 will oscillate due to PCB thickness, that board is not good for INA 02186.
> MAR-6 will work ok in this board. I test MAR-6 in my modified xverter (432MHz IF) with extra BGF540x board (10db gain LNA) working fine.
> The same setup but with the AD6IW latest LNA is working ufb.
>
> Adam
>
> --- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@> wrote:
> >
> > Oops, forgot the link to Dan's small parts before....
> >
> > http://www.danssmallpartsandkits.net/
> >
> >
> >
> > On 5-4-2011 12:07, w1kilofoxtrot wrote:
> > >
> > > I've been poring over the history of the group, trying to determine
> > > the 'best' first receive stage. I plan on adding an external preamp,
> > > but not right away. There have been a number of devices proposed, some
> > > with great specs, but possible stability issues. Right now, I'm
> > > leaning toward a MAR-6, as at least one person (Adam?) has suggested.
> > >
> > > Any other thoughts?
> > >
> > > 73,
> > > Steve
> > > W1KF
> > >
> > >

> >
> > --
> >
>

255. 1152 LO built

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-13 01:27:49 UTC
From: w1kilofoxtrot
Topic: 255 Message: 255

I just finished the 1152 LO board. The Spectrum Analyzer says I've got a nice stable 1 152 015 000 Hz signal out at -8.4 dBm. That's a bit less than I hoped for; thinking -5 dBm might be in store. I have not had time to try adjusting the bias yet, so I thought I'd throw it out to the crowd for comment.

I hope to get the transverter built this weekend, but time has a way of slipping away from me lately!

73,
Steve
W1KF

256. Re: 1152 LO built

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-13 14:16:57 UTC
From: w1kilofoxtrot
Topic: 255 Message: 256

I just double checked the data sheet for the MAR-1. It says that the bias resistor should be 178 ohms, not the 300 specified in the documentation.

Did I miss one of the messages correcting this? Should it be lower, increasing the DC bias on the device? And, will this get me the 3 dB of gain I think I'm missing?

73,
Steve
W1KF

--- In w1ghz-transverter-builders@yahoogroups.com, "w1kilofoxtrot" <w1kf@...> wrote:
>
> I just finished the 1152 LO board. The Spectrum Analyzer says I've got a nice stable 1 152 015 000 Hz signal out at -8.4 dBm. That's a bit less than I hoped for; thinking -5 dBm might be in store. I have not had time to try adjusting the bias yet, so I thought I'd throw it out to the crowd for comment.
>
> I hope to get the transverter built this weekend, but time has a way of slipping away from me lately!
>
> 73,
> Steve
> W1KF
>

257. Re: [w1ghz-transverter-builders] Re: 1152 LO built

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-13 15:57:42 UTC
From: Zack Widup
Topic: 255 Message: 257

I've generally been using the bias resistor values calculated from the specified bias in the PDF data sheets available for the MAR and ERA devices. But if you look at the s-parameter files available for some of those, there are often s-parameters given for different bias values.

For example, the ERA-2 has s-parameters listed for biases of 32 mA @ 3.33 v, 40 mA @ 3.43 v, 48 mA @ 3.49 v (all at 25 degrees C). The data sheet only lists resistor values for an "optimum biasing" of 40 mA. You'd have to calculate the rest.

I would imagine that you could squeeze a little more power out if you biased the ERA-2 at 48 mA @ 3.49 v. if you needed it.

As for the MAR-1, the s-parameter are only given for 17 mA @ 5.0 v of biasing current (which is the value recommended in the data sheet). So you'd probably have to do some experimenting there if you wanted to vary it.

W1GHZ says "Gain is cheap" but it is also very adjustable if you don't mind swapping out MMIC's (and losing an occasional one in the process). I like to play around with MMIC's of different gains and output power levels if I don't get what I want for an output.

73, Zack W9SZ

On Fri, May 13, 2011 at 9:16 AM, w1kilofoxtrot <w1kf@earthlink.net> wrote:

>
>
> I just double checked the data sheet for the MAR-1. It says that the bias
> resistor should be 178 ohms, not the 300 specified in the documentation.
>
> Did I miss one of the messages correcting this? Should it be lower,
> increasing the DC bias on the device? And, will this get me the 3 dB of gain
> I think I'm missing?
>
> 73,
> Steve
> W1KF
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "w1kilofoxtrot" <w1kf@...>
> wrote:
> >
> > I just finished the 1152 LO board. The Spectrum Analyzer says I've got a
> nice stable 1 152 015 000 Hz signal out at -8.4 dBm. That's a bit less than
> I hoped for; thinking -5 dBm might be in store. I have not had time to try
> adjusting the bias yet, so I thought I'd throw it out to the crowd for

> comment.
> >
> > I hope to get the transverter built this weekend, but time has a way of
> slipping away from me lately!
> >
> > 73,
> > Steve
> > W1KF
> >
>
>
>

258. Re: 1152 LO built

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-14 18:04:17 UTC
From: w1kilofoxtrot
Topic: 255 Message: 258

I've gotten a couple of suggestions, thank you.

As I had a 180 Ohm resistor handy, I popped it in place of the 300 ohm bias resistor for the MAR-1. The output from the LO has increased to -4 dBm, which will work well with a MAR-3 on the transverter card. That should get me right around +8 dBm for the mixer, whose specs say +7 dBm is the right number.

I'll keep the list posted.

73,
Steve
W1KF

--- In w1ghz-transverter-builders@yahoogroups.com, "w1kilofoxtrot" <w1kf@...> wrote:
>
> I just double checked the data sheet for the MAR-1. It says that the bias resistor should be 178 ohms, not the 300 specified in the documentation.
>
> Did I miss one of the messages correcting this? Should it be lower, increasing the DC bias on the device? And, will this get me the 3 dB of gain I think I'm missing?
>
> 73,
> Steve
> W1KF
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "w1kilofoxtrot" <w1kf@> wrote:
> >
> > I just finished the 1152 LO board. The Spectrum Analyzer says I've got a nice stable 1 152 015 000 Hz signal out at -8.4 dBm. That's a bit less than I hoped for; thinking -5 dBm might be in store. I have not had time to try adjusting the bias yet, so I thought I'd throw it out to the crowd for comment.
> >
> > I hope to get the transverter built this weekend, but time has a way of slipping away from me lately!
> >
> > 73,
> > Steve
> > W1KF
> >
>

259. Re: Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-14 18:06:02 UTC
From: w1kilofoxtrot
Topic: 245 Message: 259

I just discovered I have a couple MGA-86576 GaAs fet based MMICs. Claim to have decent gain and NF, but are designed for 5V operation. Any thoughts about this device?

73,
Steve
W1KF

--- In w1ghz-transverter-builders@yahoogroups.com, "w1kilofoxtrot" <w1kf@...> wrote:
>
> Many thanks for all the comments. I've got the MAR-6 handy, but will get some 10386 as well. It will all depend on what arrives before I'm ready to solder the RX part in place!
>
> 73,
> Steve
> W1KF
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@> wrote:
> >
> > Hello guys,
> >
> > Just came back from the spring VHF & up contest where tested new modified rover xverters for 23 and 13cm from the hill location.
> >
> > RX MMIC, originally INA10386 will work fine.
> > INA 02186 will oscillate due to PCB thickness, that board is not good for INA 02186.
> > MAR-6 will work ok in this board. I test MAR-6 in my modified xverter (432MHz IF) with extra BGF540x board (10db gain LNA) working fine.
> > The same setup but with the AD6IW latest LNA is working ufb.
> >
> > Adam
> >
> > --- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@> wrote:
> > >
> > > Oops, forgot the link to Dan's small parts before....
> > >
> > > http://www.danssmallpartsandkits.net/
> > >
> > >
> > >
> > > On 5-4-2011 12:07, w1kilofoxtrot wrote:
> > > >
> > > > I've been poring over the history of the group, trying to determine
> > > > the 'best' first receive stage. I plan on adding an external preamp,
> > > > but not right away. There have been a number of devices proposed, some
> > > > with great specs, but possible stability issues. Right now, I'm

> > > > leaning toward a MAR-6, as at least one person (Adam?) has suggested.
> > > >
> > > > Any other thoughts?
> > > >
> > > > 73,
> > > > Steve
> > > > W1KF
> > > >
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> > >
> >
>

260. Re: [w1ghz-transverter-builders] Re: Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-14 18:30:18 UTC
From: Zack Widup
Topic: 245 Message: 260

They are becoming hard to get, but I have a couple around. They should work just like any other MMIC. Probably would do fine in the W1GHZ circuit. Give it a try.

73, Zack W9SZ

On Sat, May 14, 2011 at 1:06 PM, w1kilofoxtrot <w1kf@...> wrote:

>
>
> I just discovered I have a couple MGA-86576 GaAs fet based MMICs. Claim to
> have decent gain and NF, but are designed for 5V operation. Any thoughts
> about this device?
>
> 73,
> Steve
> W1KF
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "w1kilofoxtrot" <w1kf@...>
> wrote:
> >
> > Many thanks for all the comments. I've got the MAR-6 handy, but will get
> some 10386 as well. It will all depend on what arrives before I'm ready to
> solder the RX part in place!
> >
> > 73,
> > Steve
> > W1KF
> >
> > --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@>
> wrote:
> > >
> > > Hello guys,
> > >
> > > Just came back from the spring VHF & up contest where tested new
> modified rover xverters for 23 and 13cm from the hill location.
> > >
> > > RX MMIC, originally INA10386 will work fine.
> > > INA 02186 will oscillate due to PCB thickness, that board is not good
> for INA 02186.
> > > MAR-6 will work ok in this board. I test MAR-6 in my modified xverter
> (432MHz IF) with extra BGF540x board (10db gain LNA) working fine.
> > > The same setup but with the AD6IW latest LNA is working ufb.
> > >
> > > Adam

> > >
> > > --- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@>
> wrote:
> > > >
> > > > Oops, forgot the link to Dan's small parts before....
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> > > > On 5-4-2011 12:07, w1kilofoxtrot wrote:
> > > > >
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> > > > > but not right away. There have been a number of devices proposed,
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> > > > > with great specs, but possible stability issues. Right now, I'm
> > > > > leaning toward a MAR-6, as at least one person (Adam?) has
> suggested.
> > > > >
> > > > > Any other thoughts?
> > > > >
> > > > > 73,
> > > > > Steve
> > > > > W1KF
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261. Re: Best choice for receive MMIC?

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-14 21:59:36 UTC
From: adam
Topic: 245 Message: 261

You may have the unstability problems with this mmic on FR-4/G10 0.062" boards. The other problem is the input tuning for optimal NF.
This mmic will work much better on the 2.3 GHz.

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> They are becoming hard to get, but I have a couple around. They should work
> just like any other MMIC. Probably would do fine in the W1GHZ circuit. Give
> it a try.
>
> 73, Zack W9SZ
>
>
> On Sat, May 14, 2011 at 1:06 PM, w1kilofoxtrot <w1kf@...> wrote:
>
> > >
> > >
> > > I just discovered I have a couple MGA-86576 GaAs fet based MMICs. Claim to
> > > have decent gain and NF, but are designed for 5V operation. Any thoughts
> > > about this device?
> > >
> > > 73,
> > > Steve
> > > W1KF
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> > >
> > > --- In w1ghz-transverter-builders@yahoogroups.com, "w1kilofoxtrot" <w1kf@>
> > > wrote:
> > > >
> > > > Many thanks for all the comments. I've got the MAR-6 handy, but will get
> > > some 10386 as well. It will all depend on what arrives before I'm ready to
> > > solder the RX part in place!
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> > > > 73,
> > > > Steve
> > > > W1KF
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> > > > --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@>
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> > > > > Hello guys,
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> > > > > Just came back from the spring VHF & up contest where tested new

> > modified rover xverters for 23 and 13cm from the hill location.
> > > >
> > > > RX MMIC, originally INA10386 will work fine.
> > > > INA 02186 will oscillate due to PCB thickness, that board is not good
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> > > > MAR-6 will work ok in this board. I test MAR-6 in my modified xverter
> > (432MHz IF) with extra BGF540x board (10db gain LNA) working fine.
> > > > The same setup but with the AD6IW latest LNA is working ufb.
> > > > >
> > > > Adam
> > > > >
> > > > --- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@>
> > wrote:
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> > > > > Oops, forgot the link to Dan's small parts before....
> > > > > >
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> > > > > > >
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> > > > > On 5-4-2011 12:07, w1kilofoxtrot wrote:
> > > > > > > >
> > > > > > I've been poring over the history of the group, trying to determine
> > >
> > > > > > the 'best' first receive stage. I plan on adding an external
> > preamp,
> > > > > > but not right away. There have been a number of devices proposed,
> > some
> > > > > > with great specs, but possible stability issues. Right now, I'm
> > > > > > leaning toward a MAR-6, as at least one person (Adam?) has
> > suggested.
> > > > > > >
> > > > > > Any other thoughts?
> > > > > > >
> > > > > > 73,
> > > > > > Steve
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262. W1GHZ 2m minitverters

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-15 18:50:49 UTC
From: James French
Topic: 262 Message: 262

I haven't seen it come across here yet, but DownEast Microwave is supplying the W1GHZ 2m Minverters that he has designed to get from 28MHz to 2m.

Here is the site for the announcement and prices:
http://www.downeastmicrowave.com/ghzmini.htm

James W8ISS

263. Re: [w1ghz-transverter-builders] W1GHZ 2m minitverters

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-15 18:59:43 UTC
From: Zack Widup
Topic: 262 Message: 263

I had to make my own boards for 432 MHz because the helical filters I have for that band are a different size than the ones used by W1GHZ (and I'm assuming, by DEM). Otherwise I left the circuit the same. This is an intermediate IF for 24 GHz. It seems to work well.

73, Zack W9SZ

On Sun, May 15, 2011 at 1:50 PM, James French <w8iss@...>wrote:

>
>
> I haven't seen it come across here yet, but DownEast Microwave is
> supplying the W1GHZ 2m Minverters that he has designed to get from 28MHz
> to 2m.
>
> Here is the site for the announcement and prices:
> http://www.downeastmicrowave.com/ghzmini.htm
>
> James W8ISS
>
>
>

264. Re: W1GHZ 2m minitverters

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-16 19:24:28 UTC
From: adam
Topic: 262 Message: 264

Quick offtopic,

Zack, what kind of xverter are you using on 24 GHz?

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> I had to make my own boards for 432 MHz because the helical filters I have
> for that band are a different size than the ones used by W1GHZ (and I'm
> assuming, by DEM). Otherwise I left the circuit the same. This is an
> intermediate IF for 24 GHz. It seems to work well.
>
> 73, Zack W9SZ
>
> On Sun, May 15, 2011 at 1:50 PM, James French <w8iss@...>wrote:
>
> > >
> > >
> > > I haven't seen it come across here yet, but DownEast Microwave is
> > > supplying the W1GHZ 2m Minverters that he has designed to get from 28MHz
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> > > Here is the site for the announcement and prices:
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> > >
> > > James W8ISS
> > >
> > >
> > >
>

265. Re: [w1ghz-transverter-builders] Re: W1GHZ 2m minitverters

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-16 21:07:48 UTC
From: Zack Widup
Topic: 262 Message: 265

Hi Adam,

I have an Endwave SDH transceiver.

73, Zack W9SZ

On Mon, May 16, 2011 at 2:24 PM, adam <adam9a4qv@...> wrote:

>
>
> Quick offtopic,
>
> Zack, what kind of xverter are you using on 24 GHz?
>
> Adam
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...>
> wrote:
> >
> > I had to make my own boards for 432 MHz because the helical filters I
> have
> > for that band are a different size than the ones used by W1GHZ (and I'm
> > assuming, by DEM). Otherwise I left the circuit the same. This is an
> > intermediate IF for 24 GHz. It seems to work well.
> >
> > 73, Zack W9SZ
> >
> > On Sun, May 15, 2011 at 1:50 PM, James French <w8iss@...>wrote:
>
> >
> > > >
> > > > I haven't seen it come across here yet, but DownEast Microwave is
> > > > supplying the W1GHZ 2m Minverters that he has designed to get from
> > 28MHz
> > > > to 2m.
> > > >
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> > > >
> > > > James W8ISS
> > > >
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266. Re: [w1ghz-transverter-builders] W1GHZ 2m minitverters

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-24 00:24:35 UTC
From: aa9il@sbcglobal.net
Topic: 262 Message: 266

Howdy
How was Dayton - pick up any interesting parts?
73 de Mike

--- On Sun, 5/15/11, Zack Widup <w9sz.zack@...> wrote:

From: Zack Widup <w9sz.zack@...>
Subject: Re: [w1ghz-transverter-builders] W1GHZ 2m minitverters
To: w1ghz-transverter-builders@yahoogroups.com
Date: Sunday, May 15, 2011, 1:59 PM

I had to make my own boards for 432 MHz because the helical filters I have for that band are a different size than the ones used by W1GHZ (and I'm assuming, by DEM). Otherwise I left the circuit the same. This is an intermediate IF for 24 GHz. It seems to work well.

73, Zack W9SZ

On Sun, May 15, 2011 at 1:50 PM, James French <w8iss@...> wrote:

I haven't seen it come across here yet, but DownEast Microwave is
supplying the W1GHZ 2m Minverters that he has designed to get from 28MHz
to 2m.

Here is the site for the announcement and prices:
http://www.downeastmicrowave.com/ghzmini.htm

James W8ISS

267. Re: [w1ghz-transverter-builders] W1GHZ 2m minitverters

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-24 03:31:26 UTC
From: Zack Widup
Topic: 262 Message: 267

There wasn't a whole lot that was interesting to me this year. I got one of those PLL VCXO oscillators that Alan VK3XPD had advertised he would bring to Dayton. They were $100. Something else to play with! It was great meeting Alan and chatting with him for about an hour. It was his first time at Dayton. He also gave me (free) some multiplier boards with etched bandpass filters that will multiply up to around 5600 MHz.

I got another of the 2304 unmodified amps that the MGEF group, specifically WA2AUU, was selling. He had about 100 left and was selling them for $35. I have two now; I bought one last year. I figure I can modify both and maybe sell one.

My name was one of the last called for door prizes at the VHF Weak Signal Banquet. There were still some sheets of Duroid there (someone had donated about 10 sheets) so I got a 9 X 12 inch sheet of 10 mil thick Duroid 5880. I can use that!

Lloyd NE8I had some 47 GHz filters made by that OZ8, I think. I didn't buy one at Dayton but Lloyd said any time I want one he'll sell it for $100. He has several.

I spent quite a bit of time visiting people in the flea market - K9JK and WB8BZK, who had a space together; WA5VJB and NE8I who had a space together; W5LUA; and the MGEF people (mainly WA1ZMS, WA2AUU and W3SZ). So we had W2SZ, W3SZ and W9SZ all in the same place!

All in all it was a great time. I was in the SMC hospitality suite at the Crowne Plaza till 4 am on Sunday morning. I stayed at the Doubletree about 4 blocks away.

73, Zack

On 5/23/11, aa9il@... <aa9il@...> wrote:
> Howdy
> How was Dayton - pick up any interesting parts?
> 73 de Mike
>
>
> --- On Sun, 5/15/11, Zack Widup <w9sz.zack@...> wrote:
>
> From: Zack Widup <w9sz.zack@...>
> Subject: Re: [w1ghz-transverter-builders] W1GHZ 2m minitverters
> To: w1ghz-transverter-builders@yahoogroups.com
> Date: Sunday, May 15, 2011, 1:59 PM
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> I had to make my own boards for 432 MHz because the helical filters I
> have for that band are a different size than the ones used by W1GHZ (and I'm
> assuming, by DEM). Otherwise I left the circuit the same. This is an
> intermediate IF for 24 GHz. It seems to work well.
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>
> 73, Zack W9SZ
>
>
> On Sun, May 15, 2011 at 1:50 PM, James French <w8iss@...>
> wrote:
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> I haven't seen it come across here yet, but DownEast Microwave is
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268. 33cm transverter board writeup

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-28 01:33:04 UTC
From: ke4qdl
Topic: 268 Message: 268

Hi All,

I recently wrote up my experience putting together the 900 mhz. transverter board/LO and would like to share the link with the group in the hopes that maybe it will help someone in the future. Please point your browser to http://www.w4ti.us and let me know what you think via w4ti@....

Best,
Chase

269. Re: 33cm transverter board writeup

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-29 13:37:45 UTC
From: Vince
Topic: 268 Message: 269

--- In w1ghz-transverter-builders@yahoogroups.com, "ke4qdl" <ke4qdl@...> wrote:
> I recently wrote up my experience putting together the 900 mhz. transverter board/LO and would like to share the link with the group in the hopes that maybe it will help someone in the future.

ke4qdl de n9nfb

Nice writeup, and perhaps great minds think alike?

http://vincemulhollon.blogspot.com/2011/02/w1ghz-1152-mhz-local-oscillators.html

http://vincemulhollon.blogspot.com/2011/02/w1ghz-720-mhz-local-oscilators.html

It seems the groundplane behind the hairpins is a very popular place to Manhattan-style a 12V regulator. Back when I got started in this 30 years ago, I would have been considered nuts to solder a TO-220 heatsink directly to a PCB, that'll peel the copper for sure or kill the transistor, but, having seen billions of SMD components and boards survive the heat, I do it all the time now. Admittedly lotsa heat very quickly is much safer for all than spending 10 minutes trying to use a 10 watt iron... Much as you noted regarding the SMAs, I'd solder the ground tab of the 7808 as about the first or second component on the board, and test it before continuing...

Also I put the regulators on the corner of the board opposite to the crystal rather than the center. Mine run icy cold at 12V in, but I have an old surplus 24 supply and some 24V T/R relays and the regs might warm up at 24V, haven't even tried yet.

Another idea I had that you didn't try was intentionally using super duper lossy micro-coax as power lead instead of going ferite... lossy = free bypassing right? Of course depending on v-factor with my luck I've probably managed to use a perfect half-wave of coax at some inconvenient freq...

I'd suggest adding some LEDs for troubleshooting... system wide I use green for RX only ckts, red for TX only ckts, and yellow for both like the LO. Makes it easy to find intermittent power conns, and I need a load to test the regulator anyway. Also if you eventually miswire the sequencer, its kinda obvious when theres a mix of christmas tree colors when its supposed to be all green or whatever.

Re the +6.68 dBm what are you using to measure to hundredths of a DB? A hundredth is probably attributable to variations in torque on the SMA connector, air pressure and humidity affecting the hairpins, gravitational attraction from the moon, stray ac power fields coupling into the MMIC bias ckts, etc, so I think you're all good re the +7 dBm mixer.

ke4qdl de Vince n9nfb EN53ua

270. Re: 33cm transverter board writeup

Yahoo group: w1ghz-transverter-builders
Date: 2011-05-30 01:31:34 UTC
From: ke4qdl
Topic: 268 Message: 270

--- In w1ghz-transverter-builders@yahoogroups.com, "Vince" <vince@...> wrote:
>
> I'd suggest adding some LEDs for troubleshooting... system wide I use green for RX only ckts, red for TX only ckts, and yellow for both like the LO. Makes it easy to find intermittent power conns, and I need a load to test the regulator anyway. Also if you eventually miswire the sequencer, its kinda obvious when theres a mix of christmas tree colors when its supposed to be all green or whatever.
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> Re the +6.68 dBm what are you using to measure to hundredths of a DB? A hundredth is probably attributable to variations in torque on the SMA connector, air pressure and humidity affecting the hairpins, gravitational attraction from the moon, stray ac power fields coupling into the MMIC bias ckts, etc, so I think you're all good re the +7 dBm mixer.
>
> ke4qdl de Vince n9nfb EN53ua
>

Hi Vince,

Enjoyed the photos, thanks for sharing! The more these transverters get shown, the more likely it is someone will say, "I can build that!"

I very much like the idea of using LEDs in the circuit- should have given that some thought. When I get my enclosure figured out, I'll figure out a way to place them to have go/no go indicators. I'll probably build my filter shielding first before I settle on the dimensions of the transverter enclosure- there is a guy locally who will make metal boxes for a good price. Look up KI4KGK and contact him.

It wasn't my equipment, as I don't have any to do the measurements, but it was an HP power meter of some variety. Apparently, it is very easy to find the power meter cheaply- its the power meter sensor (and cable) that costs the big bucks, because they are easy to blow up and therefore less of them around.

Again, thanks for the pictures and the note. I'm happy to see and talk to other people about building these transverters, of which I am a novice.

Best,
Chase

271. Yahoo List for 902 MHz and up

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-04 16:01:18 UTC
From: Scott
Topic: 271 Message: 271
Attachments: 1 described; binary payloads are missing from this source WARC

I've had my email list running for a while, but haven't done much to get the word out, so I thought I would let others know about it...the charter of the group is

"Collection point for data on microwave gear such as modification, documentation of commercial surplus parts, homebrew gear, radio modifications for use with microwave gear, microwave radio gear for sale, etc. Basically, any data on anything related to microwave (900 MHz and up) operation."

I am hoping there will be a steady supply of gear for sale (I myself plan to list microwave gear for sale!), so if you are not interested in seeing items for sale, the group may not be for you...just throwing it out for you to check out!

http://groups.yahoo.com/group/AmateurRadioMicrowaves/join

--

272. 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-15 13:56:11 UTC
From: Zack Widup
Topic: 272 Message: 272

I got to use my new 902 MHz transverter based on the W1GHZ boards in the June VHF contest last weekend. It did quite well. My best DX was W9GA near Milwaukee, close to 250 miles away, under nominal conditions. We made it but there wasn't much band enhancement.

I was Single-Op (QRP) Portable on a hilltop in EN50. The transverter was putting out 10 watts.

73, Zack W9SZ

273. Re: 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-15 14:03:43 UTC
From: David Palm
Topic: 272 Message: 273

Alright! Now this is what I've been waiting for--reports on how these things perform under real conditions. Thanks Zack!

I totally sat out this last context. Broke my heart, but personal responsibilities dictated. I do really hope to have the W1GHZ 'verters and a bit of power done for at least 902 and 1296 for the August UHF contest, though.

Thanks again for the update and keep 'em coming.

73,

David W9HQ

274. Re: [w1ghz-transverter-builders] Re: 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-15 16:50:49 UTC
From: Joshua M. Arritt
Topic: 272 Message: 274

My 1296 W1GHZ-based "trashverter" had LO issues in the field this June... namely, no (or not enough) LO to drive the mixer.

While it worked great in listening tests in the field on the Blue Ridge Parkway, when it came time to shine on the mountaintop Saturday night, undoubtedly my shoddy construction methods prevented the miracle of that first contact.

So, August, here we come.

- Josh / KF4YLM

On 6/15/2011 10:03 AM, David Palm wrote:
>
>
> Alright! Now this is what I've been waiting for--reports on how these
> things perform under real conditions. Thanks Zack!
>
> I totally sat out this last context. Broke my heart, but personal
> responsibilities dictated. I do really hope to have the W1GHZ
> 'verters and a bit of power done for at least 902 and 1296 for the
> August UHF contest, though.
>
> Thanks again for the update and keep 'em coming.
>
> 73,
>
> David W9HQ
>
>
>
>

275. Re: [w1ghz-transverter-builders] 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-15 17:14:03 UTC
From: Scott
Topic: 272 Message: 275

Wow! I remember the first versions being only 10 or 20 mW ;)

N0EDV

----- Original Message -----
From: Zack Widup
To: w1ghz-transverter-builders
Sent: 15 June, 2011 13:56
Subject: [w1ghz-transverter-builders] 902 MHz in contest

I got to use my new 902 MHz transverter based on the W1GHZ boards in the June VHF contest last weekend. It did quite well. My best DX was W9GA near Milwaukee, close to 250 miles away, under nominal conditions. We made it but there wasn't much band enhancement.

I was Single-Op (QRP) Portable on a hilltop in EN50. The transverter was putting out 10 watts.

73, Zack W9SZ

276. Re: [w1ghz-transverter-builders] 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-15 20:04:15 UTC
From: Zack Widup
Topic: 272 Message: 276

I guess I should've said my transverter SYSTEM was putting out 10 watts. I have an amp module built into it. The transverter board itself is putting out about +6 dBm.

I'm also using a WD5AGO/W5LUA CSVHF2007 preamp using an ATF36077 followed by a MGF61563. Nice preamp.

73, Zack W9SZ

On Wed, Jun 15, 2011 at 12:14 PM, Scott <acepilot@...> wrote:

>
>
> Wow! I remember the first versions being only 10 or 20 mW ;)
>
> N0EDV
>
>
> ----- Original Message -----
> *From:* Zack Widup <w9sz.zack@...>
> *To:* w1ghz-transverter-builders<w1ghz-transverter-builders@yahoogroups.com>
> *Sent:* 15 June, 2011 13:56
> *Subject:* [w1ghz-transverter-builders] 902 MHz in contest
>
>
>
> I got to use my new 902 MHz transverter based on the W1GHZ boards in
> the June VHF contest last weekend. It did quite well. My best DX was
> W9GA near Milwaukee, close to 250 miles away, under nominal
> conditions. We made it but there wasn't much band enhancement.
>
> I was Single-Op (QRP) Portable on a hilltop in EN50. The transverter
> was putting out 10 watts.
>
> 73, Zack W9SZ
>
>
>

277. Re: [w1ghz-transverter-builders] Re: 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-16 01:54:35 UTC
From: Tyler Harpster
Topic: 272 Message: 277

I didn't get a chance to get my 903 W1GHZ out for the June contest, but I had it out for the spring sprint. I talked to a guy just west of DC from Shrewsbury PA on 180 mWatts. That's a distance of about 75 miles! If I can drive the amp a little harder, I'll be able to get a lot more mileage out of it. Working on the 1296 version for August and September.

73 de KM3G
Tyler

----- Original Message -----
From: David Palm
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Wednesday, June 15, 2011 10:03 AM
Subject: [w1ghz-transverter-builders] Re: 902 MHz in contest

Alright! Now this is what I've been waiting for--reports on how these things perform under real conditions. Thanks Zack!

I totally sat out this last context. Broke my heart, but personal responsibilities dictated. I do really hope to have the W1GHZ 'verters and a bit of power done for at least 902 and 1296 for the August UHF contest, though.

Thanks again for the update and keep 'em coming.

73,

David W9HQ

278. Re: [w1ghz-transverter-builders] 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-16 01:55:30 UTC
From: Tyler Harpster
Topic: 272 Message: 278

They are all 10 or 20 mW. We're putting amps down the line.

Tyler
KM3G

----- Original Message -----
From: Scott
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Wednesday, June 15, 2011 1:14 PM
Subject: Re: [w1ghz-transverter-builders] 902 MHz in contest

Wow! I remember the first versions being only 10 or 20 mW ;)

N0EDV

----- Original Message -----
From: Zack Widup
To: w1ghz-transverter-builders
Sent: 15 June, 2011 13:56
Subject: [w1ghz-transverter-builders] 902 MHz in contest

I got to use my new 902 MHz transverter based on the W1GHZ boards in the June VHF contest last weekend. It did quite well. My best DX was W9GA near Milwaukee, close to 250 miles away, under nominal conditions. We made it but there wasn't much band enhancement.

I was Single-Op (QRP) Portable on a hilltop in EN50. The transverter was putting out 10 watts.

73, Zack W9SZ

279. Re: [w1ghz-transverter-builders] 902 MHz in contest

Yahoo group: w1ghz-transverter-builders
Date: 2011-06-16 10:41:02 UTC
From: Scott
Topic: 272 Message: 279
Attachments: 1 described; binary payloads are missing from this source WARC

Understood. I was just jerkin' Zack's bobber ;)

On 6-16-2011 01:55, Tyler Harpster wrote:
>
> They are all 10 or 20 mW. We're putting amps down the line.
> Tyler
> KM3G
>
> ----- Original Message -----
> *From:* Scott <mailto:acepilot@...>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>
> *Sent:* Wednesday, June 15, 2011 1:14 PM
> *Subject:* Re: [w1ghz-transverter-builders] 902 MHz in contest
>
> Wow! I remember the first versions being only 10 or 20 mW ;)
> N0EDV
>
> ----- Original Message -----
> *From:* Zack Widup <mailto:w9sz.zack@...>
> *To:* w1ghz-transverter-builders
> <mailto:w1ghz-transverter-builders@yahoogroups.com>
> *Sent:* 15 June, 2011 13:56
> *Subject:* [w1ghz-transverter-builders] 902 MHz in contest
>
> I got to use my new 902 MHz transverter based on the W1GHZ
> boards in
> the June VHF contest last weekend. It did quite well. My best
> DX was
> W9GA near Milwaukee, close to 250 miles away, under nominal
> conditions. We made it but there wasn't much band enhancement.
>
> I was Single-Op (QRP) Portable on a hilltop in EN50. The
> transverter
> was putting out 10 watts.
>
> 73, Zack W9SZ
>
>

--

280. W1GHZ 756 LO for sale (assembled)

Yahoo group: w1ghz-transverter-builders
Date: 2011-07-22 04:53:05 UTC
From: ke4qdl
Topic: 280 Message: 280

Hello,

I've got a spare 756 LO I will not be using for sale. Completely assembled, puts out +7 dBm, has amphenol connector and voltage regulator installed to turn 12 V to 8. I'd be happy to send this to you for $25 delivered.

Feel free to contact me at w4ti@...

281. Re: W1GHZ 756 LO for sale (assembled)

Yahoo group: w1ghz-transverter-builders
Date: 2011-07-23 22:59:54 UTC
From: ke4qdl
Topic: 280 Message: 281

The LO has been sold. Thanks!

--- In w1ghz-transverter-builders@yahoogroups.com, "ke4qdl" <ke4qdl@...> wrote:
>
> Hello,
>
> I've got a spare 756 LO I will not be using for sale. Completely assembled, puts out +7 dBm, has amphenol connector and voltage regulator installed to turn 12 V to 8. I'd be happy to send this to you for $25 delivered.
>
> Feel free to contact me at w4ti@...
>

282. FS : W1GHZ style Transverter kits 902 and 1296

Yahoo group: w1ghz-transverter-builders
Date: 2011-07-27 22:21:25 UTC
From: Bob Mantell
Topic: 282 Message: 282

W1GHZ style Transverters available. Work and family commitments leave me no time to work on these projects. For details of this build out see. http://www.w1ghz.org/MBT/902_MHz_Transverter_for_the_Multiband_Rover.pdf2ea 900MHz transverter parts kits, with 900MHZ boards, relay kits with boards, 756LO kits with boards. Some parts installed on boards, but plenty of work left 1 ea 1296RSU transverter parts kits with 1296RSU board, relay kit with board, and 720LO kit with board. No assembly done yet All three Transverters: Both complete 902 kits and the complete 1296 kit for $180.00 including shipping.

73 de Bob,

W4GA EM74qc

Bob Mantell
k4esa@...

283. For sale: Two Motorola MHW820-3 900MHZ 18w PA modules

Yahoo group: w1ghz-transverter-builders
Date: 2011-08-03 19:25:27 UTC
From: thepalmhq
Topic: 283 Message: 283

My life is not allowing bench time to tinker with anything. I bought a turn-key 900 MHz amplifier, so I'm going to unload a few parts that I had hoped to experiment with. The first to go are two Motorola MHW820-3 PA modules. Data sheet says they'll be good for 18 watts each. I hope they'll do someone some good. I'll ship them out CONUS for $40 for the two of them.

73,

David W9HQ

286. Pin diode modification of transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-08-13 16:51:45 UTC
From: l_moline
Topic: 286 Message: 286

Hello...I am new in this group. I am wondering what if any improvements resulted from this modification. Thanks!

287. Re: FS : W1GHZ style Transverter kits 902 and 1296

Yahoo group: w1ghz-transverter-builders
Date: 2011-08-13 17:24:51 UTC
From: sw1mne
Topic: 282 Message: 287

Hi Bob,

I am yiannis, sw1mne from Athens/Greece. I wonder if I could get only the 1296 set, as there is no allocation for 902 MHz in our region.

73 de Yiannis
--- In w1ghz-transverter-builders@yahoogroups.com, Bob Mantell <k4esa@...> wrote:
>
> W1GHZ style Transverters available. Work and family commitments leave me no time to work on these projects. For details of this build out
see. http://www.w1ghz.org/MBT/902_MHz_Transverter_for_the_Multiband_Rover.pdf2ea 900MHz transverter parts kits, with 900MHZ boards, relay kits with boards, 756LO kits with boards. Some parts installed on boards, but plenty of work left 1 ea 1296RSU transverter parts kits with 1296RSU board, relay kit with board, and 720LO kit with board. No assembly done yet All three Transverters: Both complete 902 kits and the complete 1296 kit for $180.00 including shipping.
>
>
> 73 de Bob,
>
> W4GA EM74qc
>
> Bob Mantell
> k4esa@...
>
>

288. Re: [w1ghz-transverter-builders] Pin diode modification of transverter

Yahoo group: w1ghz-transverter-builders
Date: 2011-08-13 22:14:44 UTC
From: Zack Widup
Topic: 286 Message: 288

Hi Loren,

I can't say what improvements resulted because I didn't try it first without the PIN diodes. But my mod was definitely successful and works fine.

My circuit was basically the one shown in the Files section as "W1GHZ PIN Diode Modification.jpg." I simply grounded the lead for the side that was not being used.

73, Zack W9SZ

On 8/13/11, l_moline <wa7skt@...> wrote:
> Hello...I am new in this group. I am wondering what if any improvements
> resulted from this modification. Thanks!
>
>

289. W1GHZ 9cm rover x-verter

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-08 18:42:56 UTC
From: adam
Topic: 289 Message: 289

EU portion of the band 3400 MHz with modified rover Transverter.
All power supply is 9V.
Output power 25mW.
IF 436 MHz.
L.O. 741 MHz (S53MV design)
741 x 4 + 436 = 3400 MHz
Extra AH-102A MMIC delivering 250mW on 3400MHz
Sequencer with attenuator and RF/PTT automatic switching for easy FT-817 operation

Some photos:
http://hrvhf.net/forum/index.php?topic=1816.msg16153#new

Soon on my blog pages

9A4QV

290. Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-08 21:24:46 UTC
From: ferrymanr
Topic: 290 Message: 290

I have been studying available photos of the 1152 LO board for the RSU transverter and am confused as to the supply feed for A3 (MAR6) output stage. There is a track from the output of A3 to a via where I assume R4 is located on the ground side of the board towards a pair of vias 10mm nearer the output connector. Question is where should I locate C15 and how does it link to R4. Ther is a plethora of vias near the etched 'W1GHZ 2008a' and a trace of silk screen which may be '15' but no obvious route from there to R4. This seems a long way apart. Available photos show absolutely nothing. Any suggestions?

So fat the first stage is working well, I even managed to obtain a 64MHz TCXO. The comb filter is not far off tune as I have a reasonably clean spectrum at 182MHz.
Dick

291. Re: [w1ghz-transverter-builders] Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-08 21:54:19 UTC
From: Zack Widup
Topic: 290 Message: 291

I don't have the board in front of me, but from my recollection R4 is on the ground-plane side of the board, as you mentioned, and the B+ end of the resistor solders to a pad which is surrounded by groundplane. I soldered the chip cap from this pad to the groundplane on the bottom of the board right where the resistor lead comes through the board..

73, Zack W9SZ

On Thu, Sep 8, 2011 at 4:24 PM, ferrymanr <g4bbh@...> wrote:

> **
>
>
> I have been studying available photos of the 1152 LO board for the RSU
> transverter and am confused as to the supply feed for A3 (MAR6) output
> stage. There is a track from the output of A3 to a via where I assume R4 is
> located on the ground side of the board towards a pair of vias 10mm nearer
> the output connector. Question is where should I locate C15 and how does it
> link to R4. Ther is a plethora of vias near the etched 'W1GHZ 2008a' and a
> trace of silk screen which may be '15' but no obvious route from there to
> R4. This seems a long way apart. Available photos show absolutely nothing.
> Any suggestions?
>
> So fat the first stage is working well, I even managed to obtain a 64MHz
> TCXO. The comb filter is not far off tune as I have a reasonably clean
> spectrum at 182MHz.
> Dick
>
>
>

292. Programmable oscillator that 'might' work for LO boards

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-08 22:05:27 UTC
From: James French
Topic: 292 Message: 292

I had grabbed a couple of these programmed for 50.075 and 144.291 MHz
to play with for another project.

http://www.ecsxtal.com/store/pdf/ecs-p83x-p85x.pdf

James W8ISS

293. Re: Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-08 23:16:49 UTC
From: ferrymanr
Topic: 290 Message: 293

Thanks Zak. I considered that but there was no obvious square pad for a cap. I guess there were a few anomalies when Paul modified the design for 1152.
Dick

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> I don't have the board in front of me, but from my recollection R4 is on the
> ground-plane side of the board, as you mentioned, and the B+ end of the
> resistor solders to a pad which is surrounded by groundplane. I soldered the
> chip cap from this pad to the groundplane on the bottom of the board right
> where the resistor lead comes through the board..
>
> 73, Zack W9SZ
>
>
> On Thu, Sep 8, 2011 at 4:24 PM, ferrymanr <g4bbh@...> wrote:
>
> > **
> > >
> > >
> > > I have been studying available photos of the 1152 LO board for the RSU
> > > transverter and am confused as to the supply feed for A3 (MAR6) output
> > > stage. There is a track from the output of A3 to a via where I assume R4 is
> > > located on the ground side of the board towards a pair of vias 10mm nearer
> > > the output connector. Question is where should I locate C15 and how does it
> > > link to R4. Ther is a plethora of vias near the etched 'W1GHZ 2008a' and a
> > > trace of silk screen which may be '15' but no obvious route from there to
> > > R4. This seems a long way apart. Available photos show absolutely nothing.
> > > Any suggestions?
> > >
> > > So fat the first stage is working well, I even managed to obtain a 64MHz
> > > TCXO. The comb filter is not far off tune as I have a reasonably clean
> > > spectrum at 182MHz.
> > > Dick
> > >
> > >
> > >
> >

294. Re: [w1ghz-transverter-builders] Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-08 23:50:02 UTC
From: Vince Mulhollon
Topic: 290 Message: 294

On Sep 8, 2011, at 4:24 PM, "ferrymanr" <g4bbh@...> wrote:

> I have been studying available photos of the 1152 LO board for the RSU transverter and am confused as to the supply feed for A3 (MAR6) output stage. There is a track from the output of A3 to a via where I assume R4 is located on the ground side of the board towards a pair of vias 10mm nearer the output connector. Question is where should I locate C15 and how does it link to R4. Ther is a plethora of vias near the etched 'W1GHZ 2008a' and a trace of silk screen which may be '15' but no obvious route from there to R4. This seems a long way apart. Available photos show absolutely nothing. Any suggestions?

I have three working boards in front of me and a digital caliper.

The a3 via is where I inserted the r4 thru-hole style. The other end of r4 is on that isolated pad. Holding the board ground side up and oscilator side up, the isolated pad is to the left of the a3 via, at 0.460 inches 11.6 mm from top and 1.115 inches 28 mm from right side of board. I scraped away some solder resist to the top of that isolated pad and soldered the smd cap from the isolated pad to the aforementioned scraped groundplane.

I fed that pad using microcoax to a homemade 8 volt regulator built manhatten style on the bare groundplane a fingerswidth to the bottom of that pad. In other words my voltage reg is on the opposite side of the board from the 1152 hairpin filter.

It works for me, thats all I can guarantee.

73 de N9NFB Vince EN53ua

295. Re: Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-09 09:17:38 UTC
From: ferrymanr
Topic: 290 Message: 295

Thanks Vince.
I now have the cap and resistor fitted in that location as it seems to be the obvious one. My 8V regulator is mounted on the side of the diecast aluminium box I am using. I am still debating as to whether I need a separate regulator to feed the RX and TX 8V on the transverter board. I have a sequencer which is a simple PIC based unit currently on a piece of breadboard.

I removed the TCXO and fed a comb generator in place of it and looked at the spectrum after the comb filter and the peak is slightly off 192MHz so I might trim the 27pF capacitors on each line (C7, C9, C11) but doubt if it will have much effect. The 1152MHz output looks pretty clean anyway. I still need to trim the bias on A1 and A2 for maximum smoke at 1152MHz.

Once this project is done I'll have a go at the higher bands. Unfortunately 1" pipe caps are hard to find in England. I think the 28mm ones (30mm outside) are too big and the 22mm ones are too small!
Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, Vince Mulhollon <vince@...> wrote:
>
>
> On Sep 8, 2011, at 4:24 PM, "ferrymanr" <g4bbh@...> wrote:
>
> > I have been studying available photos of the 1152 LO board for the RSU transverter and am confused as to the supply feed for A3 (MAR6) output stage. There is a track from the output of A3 to a via where I assume R4 is located on the ground side of the board towards a pair of vias 10mm nearer the output connector. Question is where should I locate C15 and how does it link to R4. Ther is a plethora of vias near the etched 'W1GHZ 2008a' and a trace of silk screen which may be '15' but no obvious route from there to R4. This seems a long way apart. Available photos show absolutely nothing. Any suggestions?
>
> I have three working boards in front of me and a digital caliper.
>
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>
> I fed that pad using microcoax to a homemade 8 volt regulator built manhatten style on the bare groundplane a fingerswidth to the bottom of that pad. In other words my voltage reg is on the opposite side of the board from the 1152 hairpin filter.
>
> It works for me, thats all I can guarantee.
>
> 73 de N9NFB Vince EN53ua

>

296. Re: [w1ghz-transverter-builders] Re: Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-09 13:57:28 UTC
From: Zack Widup
Topic: 290 Message: 296

I just posted a photo in the group's photos section in "Photo Albums > W1GHZ Transverters, 1296 MHz." It's called "C15 Position." I hope this helps.

73, Zack W9SZ

On 9/9/11, ferrymanr <g4bbh@...> wrote:
> Thanks Vince.
> I now have the cap and resistor fitted in that location as it seems to be
> the obvious one. My 8V regulator is mounted on the side of the diecast
> aluminium box I am using. I am still debating as to whether I need a
> separate regulator to feed the RX and TX 8V on the transverter board. I have
> a sequencer which is a simple PIC based unit currently on a piece of
> breadboard.
>
> I removed the TCXO and fed a comb generator in place of it and looked at the
> spectrum after the comb filter and the peak is slightly off 192MHz so I
> might trim the 27pF capacitors on each line (C7, C9, C11) but doubt if it
> will have much effect. The 1152MHz output looks pretty clean anyway. I
> still need to trim the bias on A1 and A2 for maximum smoke at 1152MHz.
>
> Once this project is done I'll have a go at the higher bands. Unfortunately
> 1" pipe caps are hard to find in England. I think the 28mm ones (30mm
> outside) are too big and the 22mm ones are too small!
> Dick G4BBH
>
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, Vince Mulhollon
> <vince@...> wrote:
>>
>>
>> On Sep 8, 2011, at 4:24 PM, "ferrymanr" <g4bbh@...> wrote:
>>
>> > I have been studying available photos of the 1152 LO board for the RSU
>> > transverter and am confused as to the supply feed for A3 (MAR6) output
>> > stage. There is a track from the output of A3 to a via where I assume
>> > R4 is located on the ground side of the board towards a pair of vias
>> > 10mm nearer the output connector. Question is where should I locate C15
>> > and how does it link to R4. Ther is a plethora of vias near the etched
>> > 'W1GHZ 2008a' and a trace of silk screen which may be '15' but no
>> > obvious route from there to R4. This seems a long way apart. Available
>> > photos show absolutely nothing. Any suggestions?
>>

>> I have three working boards in front of me and a digital caliper.
>>
>> The a3 via is where I inserted the r4 thru-hole style. The other end of
>> r4 is on that isolated pad. Holding the board ground side up and
>> oscilator side up, the isolated pad is to the left of the a3 via, at 0.460
>> inches 11.6 mm from top and 1.115 inches 28 mm from right side of board. I
>> scraped away some solder resist to the top of that isolated pad and
>> soldered the smd cap from the isolated pad to the aforementioned scraped
>> groundplane.
>>
>> I fed that pad using microcoax to a homemade 8 volt regulator built
>> manhatten style on the bare groundplane a fingerswidth to the bottom of
>> that pad. In other words my voltage reg is on the opposite side of the
>> board from the 1152 hairpin filter.
>>
>> It works for me, thats all I can guarantee.
>>
>> 73 de N9NFB Vince EN53ua
>>
>
>
>

297. Re: Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-09 22:09:23 UTC
From: adam
Topic: 290 Message: 297

--- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@...> wrote:
>
> Once this project is done I'll have a go at the higher bands. Unfortunately 1" pipe caps are hard to find in England. I think the 28mm ones (30mm outside) are too big and the 22mm ones are too small!
> Dick G4BBH

Hello,

I am using 30mm out/dia pipe caps in both my transverters 13&9cm with no problems. In the 13cm version i have 40mw out and with the 9cm version i have 25mw power otput.

Even 22mm caps can be used but then the probes distance should be 1/2".

Adam
9A4QV

298. Re: Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-10 01:05:31 UTC
From: Vince
Topic: 290 Message: 298

-- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@...> wrote:
> Once this project is done I'll have a go at the higher bands. Unfortunately 1" pipe caps are hard to find in England. I think the 28mm ones (30mm outside) are too big and the 22mm ones are too small!

Perhaps you'll have to construct for the Metric 9 cm band as opposed to the Imperial 9 cm band?

LOL Not entirely tongue in cheek as some EME guy told me that across the pond you all hang out around 3400 MHz whereas we mostly hang out around 3456 MHz, would be interesting to contemplate how that affects the design beyond the obvious; assuming I wasn't being fed a line of "left handed crescent wrenches" etc.

73 de Vince N9NFB EN53ua

299. Re: Building an 1152 LO board. Advice please on layout of last stage.

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-10 13:25:57 UTC
From: ferrymanr
Topic: 290 Message: 299

The difference between US and European 13cm allocation is a nuisance. I did have to look at the passband of the LO hairpin filter for 13cm as I will have run a few MHz higher than 720MHz.

At least the 'metric' versus 'imperial' amateur band band problem is not as big a deal as the big mistake with the NASA Mars orbiter back in '99. That cost around $125 million.

Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, "Vince" <vince@...> wrote:
>
> -- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@> wrote:
> > Once this project is done I'll have a go at the higher bands. Unfortunately 1" pipe caps are hard to find in England. I think the 28mm ones (30mm outside) are too big and the 22mm ones are too small!
>
> Perhaps you'll have to construct for the Metric 9 cm band as opposed to the Imperial 9 cm band?
>
> LOL Not entirely tongue in cheek as some EME guy told me that across the pond you all hang out around 3400 MHz whereas we mostly hang out around 3456 MHz, would be interesting to contemplate how that affects the design beyond the obvious; assuming I wasn't being fed a line of "left handed crescent wrenches" etc.
>
> 73 de Vince N9NFB EN53ua
>

300. Protecting transverter 144MHz port

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-12 18:33:02 UTC
From: ferrymanr
Topic: 300 Message: 300

I am trying to think of a brute force limiter for the 144MHz port of the transverter to protect the mixer in case of a switching sequence error. Could I get away with back to back diodes across the port or even two diodes in series back to back?
Dick G4BBH

301. 2304 LO

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-16 15:13:56 UTC
From: Joshua M. Arritt
Topic: 301 Message: 301

Some folks at Virginia Tech have started a 2304 group, with a couple of us using the W1GHZ design.

One interesting modification idea to the 2304 scheme has been tossed around lately. In short, the idea is to use the DEMI Apollo synth to generate 1080MHz, then feed the LO port of the 2304 transverter and tune the filters to that fundamental's second harmonic. The goal is to obtain a more stable/accurate freq. ref., or to have several repeatable, interchangeable LOs for a club flotilla of transverters.

Thoughts? Myself -- I think I'll make those guys chase me up and down the band with my cheap xtals. (hihi!)

73,
- Josh

302. Re: 2304 LO

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-16 16:03:22 UTC
From: l_moline
Topic: 301 Message: 302

Hello....You might consider the W7BAS synthesizer.

--- In w1ghz-transverter-builders@yahoogroups.com, "Joshua M. Arritt" <jarritt@...> wrote:
>
> Some folks at Virginia Tech have started a 2304 group, with a couple of
> us using the W1GHZ design.
>
> One interesting modification idea to the 2304 scheme has been tossed
> around lately. In short, the idea is to use the DEMI Apollo synth to
> generate 1080MHz, then feed the LO port of the 2304 transverter and tune
> the filters to that fundamental's second harmonic. The goal is to
> obtain a more stable/accurate freq. ref., or to have several repeatable,
> interchangeable LOs for a club flotilla of transverters.
>
> Thoughts? Myself -- I think I'll make those guys chase me up and down
> the band with my cheap xtals. (hihi!)
>
>
>
> 73,
> - Josh
>

303. w9sz photos very helpful

Yahoo group: w1ghz-transverter-builders
Date: 2011-09-24 05:22:07 UTC
From: cduncan62
Topic: 303 Message: 303

I have a 1296RSU very similar to w9sz's working, but I really overbuilt it. Separate box for each board. Hassles with the lids. It was the learning experience I was looking for. Hi!

de Courtney, n5bf/6

304. W1GHZ boards and FM-ATV usage

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-08 19:18:30 UTC
From: James French
Topic: 304 Message: 304

Wondering if anyone has tried the transverter boards to receive and
transmit a FM-ATV signal yet?

What I am contemplating is using a set of comtech 1.2GHz FM-ATV boards
with a 720LO / 3.4GHz setup to get a signal out around 3400MHz.
More information about these boards can be found at:
www.hampubs.com/comtech.html

The math is as follows:
720 x 3 for 2160MHz
then combine that with a 1240MHz IF to get to 3400MHz

The IF frequency probably will change depending on what I find out is
the 'national' standard for ATV at 3.4GHz.

What I am worried about is the bandwidth of the signal being at 12MHz
wide compared to a 2.5KHz Sideband signal. The other thing is the boards
were designed for a 144MHz IF, not a 1200MHz IF.

There is also the boards for a ATV Exciter/Modulator Board that will out
put a 2m AM ATV signal on the surplus page of PC Electronics at:
www.hamtv.com
Look for the TXTVb board there.

Opinions?

James W8ISS

305. Re: [w1ghz-transverter-builders] W1GHZ boards and FM-ATV usage

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 04:07:57 UTC
From: Charles Seevers
Topic: 304 Message: 305

On 10/8/2011 12:18 PM, James French wrote:
>
> Wondering if anyone has tried the transverter boards to receive and
> transmit a FM-ATV signal yet?
>
> What I am contemplating is using a set of comtech 1.2GHz FM-ATV boards
> with a 720LO / 3.4GHz setup to get a signal out around 3400MHz.
> More information about these boards can be found at:
> www.hampubs.com/comtech.html
>
> The math is as follows:
> 720 x 3 for 2160MHz
> then combine that with a 1240MHz IF to get to 3400MHz
>
> The IF frequency probably will change depending on what I find out is
> the 'national' standard for ATV at 3.4GHz.
>
> What I am worried about is the bandwidth of the signal being at 12MHz
> wide compared to a 2.5KHz Sideband signal. The other thing is the boards
> were designed for a 144MHz IF, not a 1200MHz IF.
>
> There is also the boards for a ATV Exciter/Modulator Board that will out
> put a 2m AM ATV signal on the surplus page of PC Electronics at:
> www.hamtv.com
> Look for the TXTVb board there.
>
> Opinions?
>
> James W8ISS
>
>
James. I have been doing ATV on 1.2, 2.39 and 3.4 for several years
now. The best receiving setup for FMATV is using an old analog
satellite receiver with a preamp for 1.2 Ghz or a C band LNB for 3.4.
That's what I have used for years and it works great. Certain models of
the old analog receivers tune from 900 to 2150 Mhz This will get you
915, 1.2 and 3.4 if you use a C band LNB(available on eBay for less
than 20 dollars. The receivers are getting hard to find now, since
digital TV came along, but they are out there if you look hard. Many of
them only cover from 950 to 1450, which is OK for 1.2 , but you want to
look for the ones that go up to 1750 or 2150, as 3.400 is tuned on the C
Band LNB IF at 1750. A preamp is needed to use them at 1.2 because the
gain is a bit low directly into the input with out an LNB.

If you want to use AM ATV, the best bet is to use an agile modulator which puts out RF from 50 to 550 Mhz, and are cheap if you shop Ebay, and a lot cheaper than stuff from PC Electronics. Cleaner, VSB output, also. I'd be glad to answer any questions you might have about operating FMATV on 3.4 Ghz. 73 Charles W6QWN http://www.qsl.net/wr6tv

306. 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 14:56:45 UTC
From: ferrymanr
Topic: 306 Message: 306

I have been struggling to get the correct output from my LO board even though the filters are showing the correct curve and I have optimised R2 and R3. I am getting about 5dBm lower than expected on the output. Several different oscillator modules have also been tried with very similar results. I am now looking at the MMICs.
I am wondering why Paul chose to use a MAR-6 which works to 2GHz for the first multiplier to 192MHz and a MAR-1 which is a 1GHz device for the second multiplier to 1152MHz. This device would have been OK on a 720MHz board but not at 1152MHz.
I may change A2 from a MAR-1 to a MAR-6 and see if it helps unless someone can think of a good reason not to.
Dick G4BBH

307. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 16:08:17 UTC
From: adam
Topic: 306 Message: 307

--- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@...> wrote:
>
> I have been struggling to get the correct output from my LO board even though the filters are showing the correct curve and I have optimised R2 and R3. I am getting about 5dBm lower than expected on the output. Several different oscillator modules have also been tried with very similar results. I am now looking at the MMICs.
> I am wondering why Paul chose to use a MAR-6 which works to 2GHz for the first multiplier to 192MHz and a MAR-1 which is a 1GHz device for the second multiplier to 1152MHz. This device would have been OK on a 720MHz board but not at 1152MHz.
> I may change A2 from a MAR-1 to a MAR-6 and see if it helps unless someone can think of a good reason not to.
> Dick G4BBH
>

Hello Dick,

Exactly, how much is 5dBm lower than expected? What power do you have at the SMA output 1152 MHz connector?

The answer why Paul chose the MAR-1 instead of MAR-6 may lay in the fact that there is a difference how rich harmonic they produce at the end. The output power (P1db) is almost the same for both types, 0.5dBm in favor of MAR-6, but this will not bring you 5db up.

Tell us what is ur output L.O. power and what power do you need, than we can give you some solution.

Ad hock, there is a room on the L.O. board, just before the output SMA connector where you can add another MMIC to bring the L.O. level up. If you put there another MAR-6 the max power output you can reach is 2dBm. If you put there ERA-2 than you can have much more power, depending of the drive, but not more than 14dbm, with the driwe of 0dbm.

Or, you can just put ERA-2 in the place of A5 in the transverter board, with the same effect.

Just to underline, tell us the power that you have on the L.O. now...

Adam
9A4QV

308. Re: [w1ghz-transverter-builders] 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 16:17:50 UTC
From: Scott
Topic: 306 Message: 308
Attachments: 1 described; binary payloads are missing from this source WARC

MAR-6 MMICs generate good harmonics and are often used as "multipliers". The MAR-1 may be rated at 1 GHz, but as amateurs, we routinely operate devices above their rated specs...for example, DEMI used ERA devices rated to 8 GHz in their 10 GHz transverters for quite a few years with excellent results until the NLB310 came along.

One trick you can try is to wrap one lead from R3 around a small drill bit, say 2mm (or 1/16 inch...not critical), and make a "choke" out of it. Use as many turns as you can and make sure there is a bit of spacing between turns so they aren't shorted out and install the resistor with the choke side toward the MMIC. Also be sure to keep this choke above the boards groundplane so it doesn't short out there either. This helps to keep the RF from being loaded down by R3 itself as the choke provides a higher impedance to the 1152 MHz.

I assume you are getting about -10 dBm out of the board since "normal" is about -5 dBm. Are the voltages correct on the MMICs? The MAR-6s should have about 3.5VDC on the output pin and the MAR-1 should have about 5VDC at its output pin during operation. As long as they are not at 0V or supply voltage (8VDC), chances are they are working fine. One possible drawback to using a MAR-6 in place of the MAR-1, is the MAR-6 is not unconditionally stable and with its high gain, it /could/ "take off" and oscillate.

Are you looking at the output with a spectrum analyzer to be sure you are getting 1152MHz as the largest multiplier product? Are the capacitor values on the 192 MHz filter ends the correct values?

Scott
N0EDV

On 10-9-2011 14:56, ferrymanr wrote:
>
> I have been struggling to get the correct output from my LO board even
> though the filters are showing the correct curve and I have optimised
> R2 and R3. I am getting about 5dBm lower than expected on the output.
> Several different oscillator modules have also been tried with very
> similar results. I am now looking at the MMICs.
> I am wondering why Paul chose to use a MAR-6 which works to 2GHz for
> the first multiplier to 192MHz and a MAR-1 which is a 1GHz device for
> the second multiplier to 1152MHz. This device would have been OK on a
> 720MHz board but not at 1152MHz.
> I may change A2 from a MAR-1 to a MAR-6 and see if it helps unless
> someone can think of a good reason not to.
> Dick G4BBH

>
>

--

309. Re: [w1ghz-transverter-builders] 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 18:42:44 UTC
From: Zack Widup
Topic: 306 Message: 309

Hi Dick,

Good question. The MAR-1 is most likely still usable at 1152 MHz. The gain and output may be slightly lower than that listed at 1 GHz. In fact, if you look at the s2p file for the MAR-1, you will see it is characterized to 4 GHz and appears to be quite usable at least to 2.5 GHz.

Both the MAR-1 and MAR-6 are rated at around +3 dBm output at 1 dB compression point. I don't know how Paul gets more out of them unless he has some mismarked devices. Even when fiddling with the supply to these devices to peak the output, I haven't been able to get more than a dB or so more than what they're rated at. What output are you actually getting?

I am always fiddling with different MMIC's in circuits. I almost never end up any more with the same devices that are listed in articles. I swap them for the ones that will give me the outputs I want.

Note there is also a place on the transverter board itself to add an extra gain stage in the LO path. When I built mine, I tacked a piece of coax to the input trace to the mixer before installing the mixer and set the level to +7 dBm.

73, Zack W9SZ

On 10/9/11, ferrymanr <g4bbh@...> wrote:
> I have been struggling to get the correct output from my LO board even
> though the filters are showing the correct curve and I have optimised R2 and
> R3. I am getting about 5dBm lower than expected on the output. Several
> different oscillator modules have also been tried with very similar results.
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> I am wondering why Paul chose to use a MAR-6 which works to 2GHz for the
> first multiplier to 192MHz and a MAR-1 which is a 1GHz device for the second
> multiplier to 1152MHz. This device would have been OK on a 720MHz board but
> not at 1152MHz.
> I may change A2 from a MAR-1 to a MAR-6 and see if it helps unless someone
> can think of a good reason not to.
> Dick G4BBH
>
>

310. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 19:33:49 UTC
From: ferrymanr
Topic: 306 Message: 310

Well, here is what I've done so far. Construction went fairly well and I made a first test with the spectrum analyzer at the output of the comb filter. The signal seemed reasonably clean at 192MHz. I substituted a 1MHz oscillator for the 64MHz one to act as a simple comb generator and the response curve of the comb filter was pretty close to the curve given by Paul with over 30MHz bandwidth but slightly assymetrical. Returning to the 64MHz oscillator I checked the level at C4 which was about +5dBm (I did not record this figure so am going from memory). I adjusted R2 for maximum level at the test point and found 210 ohms to give highest output at 192MHz. I remember that this seemed a little low. The oscillator fundamental is attenuated well by C1/L1.

I then switched C4 to the input of A2 and checked the board ouput. I had about 94dBuV, or -13dBm. Adjusting R3 increased the output to 96dBuV or -11dBm. Spurious outputs were about 30dB down, the worst being 192MHz feedthrough and 1152 +/- 192MHz. Rechecked R2 and found 210 ohms still best. R3 is 330 ohms. Voltages are a bit off. With an 8.0V supply A1 is at 2.7V, A2 at 3.7V and A3 at 3.5V. The LO board takes about 84mA at 8V.

Regarding the comb filter I checked the caps (NPO types) before fitting and all were within about 0.5pF, about as accurate as I can reliably measure in my SMD test jig.

The LO board works with the transverter even though drive is a little low even with the extra LO amplifier stage. With a 'real hardware' 3 pole filter and preamp I can receive signals from a beacon 100KM away which is good when you consider that I am looking over chalk cliffs which are 100M higher than me and less than 1KM distance.

73 de Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> MAR-6 MMICs generate good harmonics and are often used as
> "multipliers". The MAR-1 may be rated at 1 GHz, but as amateurs, we
> routinely operate devices above their rated specs...for example, DEMI
> used ERA devices rated to 8 GHz in their 10 GHz transverters for quite a
> few years with excellent results until the NLB310 came along.
>
> One trick you can try is to wrap one lead from R3 around a small drill
> bit, say 2mm (or 1/16 inch...not critical), and make a "choke" out of
> it. Use as many turns as you can and make sure there is a bit of
> spacing between turns so they aren't shorted out and install the
> resistor with the choke side toward the MMIC. Also be sure to keep this
> choke above the boards groundplane so it doesn't short out there
> either. This helps to keep the RF from being loaded down by R3 itself
> as the choke provides a higher impedance to the 1152 MHz.
>
> I assume you are getting about -10 dBm out of the board since "normal"
> is about -5 dBm. Are the voltages correct on the MMICs? The MAR-6s
> should have about 3.5VDC on the output pin and the MAR-1 should have

> about 5VDC at its output pin during operation. As long as they are not
> at 0V or supply voltage (8VDC), chances are they are working fine. One
> possible drawback to using a MAR-6 in place of the MAR-1, is the MAR-6
> is not unconditionally stable and with its high gain, it /could/ "take
> off" and oscillate.
>
> Are you looking at the output with a spectrum analyzer to be sure you
> are getting 1152MHz as the largest multiplier product? Are the
> capacitor values on the 192 MHz filter ends the correct values?
>
> Scott
> N0EDV
>
> On 10-9-2011 14:56, ferrymanr wrote:
> >
> > I have been struggling to get the correct output from my LO board even
> > though the filters are showing the correct curve and I have optimised
> > R2 and R3. I am getting about 5dBm lower than expected on the output.
> > Several different oscillator modules have also been tried with very
> > similar results. I am now looking at the MMICs.
> > I am wondering why Paul chose to use a MAR-6 which works to 2GHz for
> > the first multiplier to 192MHz and a MAR-1 which is a 1GHz device for
> > the second multiplier to 1152MHz. This device would have been OK on a
> > 720MHz board but not at 1152MHz.
> > I may change A2 from a MAR-1 to a MAR-6 and see if it helps unless
> > someone can think of a good reason not to.
> > Dick G4BBH
> >
> >
>
> --
>

311. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 21:31:00 UTC
From: adam
Topic: 306 Message: 311

Hello Dick,

well, nice job done and easy to solve your problem.
As you have only -11dBm @ 1152 on the L.O. output and you need some +5dbm to +7dbm at the mixer the gap is 16-18dB.

Of course, no way that with one MAR-6 in the place A5 (just before) mixer can deliver more than +2dbm. Yes, Paul stated in the article that at the mixer he manage to have +5-7dbm and on the picture there is clearly seen MAR-6 but on the other hand, on the diagram there is only A5 marking with no mmic specified!

MAR-6 datasheet state P1dB of +2dbm (in the best case).You should consider some rf leaking through the bias resistor, and no MAR-6 on this world can give you there +5dBm.

You can put in the place of A5 in the transverter ERA-2 (gain 15db) where you can get +4dbm in the best case, or even ERA-3 (gain 21dB) with +10dbm in the best case. Some RF leaking through the bias resistor will bring this level down a bit. Playing with the bias resistor can give you desired level required for the mixer.

My sugestion: ERA-2 or ERA-3

let us know the result..

Adam,9A4QV

312. 10 to 25 W Amp

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 21:38:05 UTC
From: kb6uda
Topic: 312 Message: 312

Hi,

Im looking for an Amp in the 10 to 25 Watt range for my
902 Mc and 1.2 GHz radios.

Does anyone have any suggestions on a good company.

One of the reasons I want the amp is IM using 50 feet LMR400 with N connectors and know IM loosing a lot of power. I dont know what the loses are at those freq with 50 feet of LMR400 with N connectors but I believe IM loosing a lot of power.

Thanks and 73
Sincerely,
Ted
KB6UDA

313. Re: [w1ghz-transverter-builders] 10 to 25 W Amp

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 21:51:58 UTC
From: Ethan Miller K8GU
Topic: 312 Message: 313

Ted,

You lose about 2-3 dB (up to half your power) with that setup. It's
also degrading your NF quite a bit. DEMI
(http://www.downeastmicrowave.com/) will sell you amps in that power
range or a little higher. You can also use the W6PQL board and a
Mitsubishi MOSFET module...this is what N3UM did and what I am doing
(once I get the SGA-4586 I subbed as the first RX amp tamed). Or,
scrounge on eBay... Of course, there are other amateur products, but
these are the most reasonably priced options.

73 and good luck!

--Ethan, K8GU/3.

On Sun, Oct 9, 2011 at 9:38 PM, kb6uda <kb6uda@...> wrote:
> Hi,
>
> Im looking for an Amp in the 10 to 25 Watt range for my
> 902 Mc and 1.2 GHz radios.
>
> Does anyone have any suggestions on a good company.
>
> One of the reasons I want the amp is IM using 50 feet LMR400 with N connectors and know IM loosing a lot of power. I dont know what the loses are at those freq with 50 feet of LMR400 with N connectors but I believe IM loosing a lot of power.
>
> Thanks and 73
> Sincerely,
> Ted
> KB6UDA
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
>
>
>
>

--
http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

314. Re: [w1ghz-transverter-builders] 10 to 25 W Amp

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 22:04:30 UTC
From: Scott
Topic: 312 Message: 314
Attachments: 1 described; binary payloads are missing from this source WARC

50 feet of LMR-400 loses about 2 dB at 900 Mhz and about a bit maybe
2.5 dB at 1296.

Depending on your drive power available at 1296, a W6PQL amp might be
the ticket.
http://www.w6pql.com/

I'm not aware of many amps in that power range for 900 MHz. The CDMA
amps on eBay are available in 150 and 300 Watt versions. If you have a
fairly low power of drive available at 900 MHz, the 150W amp could be
used. In ones I have built up, generally 0.5W of drive gives about 20W
out, 1W gives about 45W out, up to about 5W of drive giving around 100W out.

N0EDV

On 10-9-2011 21:38, kb6uda wrote:
>
> Hi,
>
> Im looking for an Amp in the 10 to 25 Watt range for my
> 902 Mc and 1.2 GHz radios.
>
> Does anyone have any suggestions on a good company.
>
> One of the reasons I want the amp is IM using 50 feet LMR400 with N
> connectors and know IM loosing a lot of power. I dont know what the
> loses are at those freq with 50 feet of LMR400 with N connectors but I
> believe IM loosing a lot of power.
>
> Thanks and 73
> Sincerely,
> Ted
> KB6UDA
>
>

--

315. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 22:12:08 UTC
From: ferrymanr
Topic: 306 Message: 315

OK Adam. It looks as if I can get everything working at the right levels without too much work. It would have been nice to have some LO drive to spare as I had envisaged placing a small attenuator between the LO board and transverter board This would have given me the option later of replacing the attenuator with an external high Q filter to further clean up the 1152MHz if needed.

73 de Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, "adam"

<adam9a4qv@...> wrote:
>
> Hello Dick,
>
> well, nice job done and easy to solve your problem.
> As you have only -11dBm @ 1152 on the L.O. output and you need some +5dbm to +7dbm at the mixer the gap is 16-18dB.
>
> Of course, no way that with one MAR-6 in the place A5 (just before) mixer can deliver more than +2dbm. Yes, Paul stated in the article that at the mixer he manage to have +5-7dbm and on the picture there is clearly seen MAR-6 but on the other hand, on the diagram there is only A5 marking with no mmic specified!
>
> MAR-6 datasheet state P1dB of +2dbm (in the best case).You should consider some rf leaking through the bias resistor, and no MAR-6 on this world can give you there +5dBm.
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> You can put in the place of A5 in the transverter ERA-2 (gain 15db) where you can get +4dbm in the best case, or even ERA-3 (gain 21dB) with +10dbm in the best case. Some RF leaking through the bias resistor will bring this level down a bit. Playing with the bias resistor can give you desired level required for the mixer.
>
> My sugestion: ERA-2 or ERA-3
>
> let us know the result..
>
> Adam,9A4QV
>

316. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 22:48:51 UTC
From: adam
Topic: 306 Message: 316

with era-3 you should have some 3db spare, just enough for some filter..

GN
9A4QV in 5N

--- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@...> wrote:
>
> OK Adam. It looks as if I can get everything working at the right levels without too much work. It would have been nice to have some LO drive to spare as I had envisaged placing a small attenuator between the LO board and transverter board This would have given me the option later of replacing the attenuator with an external high Q filter to further clean up the 1152MHz if needed.
>
> 73 de Dick G4BBH
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "adam"
>
> <adam9a4qv@> wrote:
> >
> > Hello Dick,
> >
> > well, nice job done and easy to solve your problem.
> > As you have only -11dBm @ 1152 on the L.O. output and you need some +5dbm to +7dbm at the mixer the gap is 16-18dB.
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> > Of course, no way that with one MAR-6 in the place A5 (just before) mixer can deliver more than +2dbm. Yes, Paul stated in the article that at the mixer he manage to have +5-7dbm and on the picture there is clearly seen MAR-6 but on the other hand, on the diagram there is only A5 marking with no mmic specified!
> >
> > MAR-6 datasheet state P1dB of +2dbm (in the best case).You should consider some rf leaking through the bias resistor, and no MAR-6 on this world can give you there +5dBm.
> >
> > You can put in the place of A5 in the transverter ERA-2 (gain 15db) where you can get +4dbm in the best case, or even ERA-3 (gain 21dB) with +10dbm in the best case. Some RF leaking through the bias resistor will bring this level down a bit. Playing with the bias resistor can give you desired level required for the mixer.
> >
> > My sugestion: ERA-2 or ERA-3
> >
> > let us know the result..
> >
> > Adam,9A4QV
> >
>

317. Re: [w1ghz-transverter-builders] 10 to 25 W Amp

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 23:01:57 UTC
From: Ted M
Topic: 312 Message: 317
Attachments: 1 described; binary payloads are missing from this source WARC

Hi,

Thanks for your help. I have an Alinco that puts out 1W at 1.2 going into 50 feet of LMR400. The amount out probably falls under part 15 than part 97.
I dont want something that puts out a lot of power at these freq that is why I want something in the 10W class for both 900 Mc and 1.2 GHz.

Thanks for your reply
Best Regards
Sincerely,
Ted
KB6UDA

From: Scott <acepilot@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Sunday, October 9, 2011 3:04 PM
Subject: Re: [w1ghz-transverter-builders] 10 to 25 W Amp

50 feet of LMR-400 loses about 2 dB at 900 Mhz and about a bit maybe 2.5 dB at 1296.

Depending on your drive power available at 1296, a W6PQL amp might be the ticket.
http://www.w6pql.com/

I'm not aware of many amps in that power range for 900 MHz. The CDMA amps on eBay are available in 150 and 300 Watt versions. If you have a fairly low power of drive available at 900 MHz, the 150W amp could be used. In ones I have built up, generally 0.5W of drive gives about 20W out, 1W gives about 45W out, up to about 5W of drive giving around 100W out.

N0EDV

On 10-9-2011 21:38, kb6uda wrote:

>Hi,
>
>Im looking for an Amp in the 10 to 25 Watt range for my
>902 Mc and 1.2 GHz radios.
>
>Does anyone have any suggestions on a good company.
>
>One of the reasons I want the amp is IM using 50 feet LMR400 with N connectors and know IM loosing a lot of power. I dont know what the loses are at those freq with 50 feet of LMR400 with N connectors but I believe IM loosing a lot of power.
>
>Thanks and 73

>Sincerely,
>Ted
>KB6UDA
>
>

--

318. Re: [w1ghz-transverter-builders] 10 to 25 W Amp

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 23:39:37 UTC
From: Scott
Topic: 312 Message: 318
Attachments: 2 described; binary payloads are missing from this source WARC

Approximately 1W in at 1296 should give around 30W out if using the 75W amp from W6PQL. I have one of those amps awaiting some build time. I think it would be a good match for what you are looking for, at least at 1296.

http://www.w6pql.com/xrf-286_amplifiers_for_23cm.htm

N0EDV

On 10-9-2011 23:01, Ted M wrote:
> Hi,
> Thanks for your help. I have an Alinco that puts out 1W at 1.2 going
> into 50 feet of LMR400. The amount out probably falls under part 15
> than part 97.
> I dont want something that puts out a lot of power at these freq that
> is why I want something in the 10W class for both 900 Mc and 1.2 GHz.
> Thanks for your reply
> Best Regards
> Sincerely,
> Ted
> KB6UDA
>
> *From:* Scott <acepilot@...>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> *Sent:* Sunday, October 9, 2011 3:04 PM
> *Subject:* Re: [w1ghz-transverter-builders] 10 to 25 W Amp
>
> 50 feet of LMR-400 loses about 2 dB at 900 Mhz and about a bit maybe
> 2.5 dB at 1296.
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> amps on eBay are available in 150 and 300 Watt versions. If you have
> a fairly low power of drive available at 900 MHz, the 150W amp could
> be used. In ones I have built up, generally 0.5W of drive gives about
> 20W out, 1W gives about 45W out, up to about 5W of drive giving around
> 100W out.
>
>
> N0EDV
>
>

>
> On 10-9-2011 21:38, kb6uda wrote:
>> Hi,
>>
>> Im looking for an Amp in the 10 to 25 Watt range for my
>> 902 Mc and 1.2 GHz radios.
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>> Does anyone have any suggestions on a good company.
>>
>> One of the reasons I want the amp is IM using 50 feet LMR400 with N
>> connectors and know IM loosing a lot of power. I dont know what the
>> loses are at those freq with 50 feet of LMR400 with N connectors but
>> I believe IM loosing a lot of power.
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>> Thanks and 73
>> Sincerely,
>> Ted
>> KB6UDA
>>
>
> --
>
>

--

319. Re: [w1ghz-transverter-builders] 10 to 25 W Amp

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 23:49:18 UTC
From: Ted M
Topic: 312 Message: 319
Attachments: 2 described; binary payloads are missing from this source WARC

Hi,

Thanks for the reply. I dont feel confortable with too much power at those bands. That is why I want something in the 10 to 25W range. I preffer 10W and that is what im primarly looking for.

Again Thanks and 73
Sincerely,
Ted
KB6UDA

From: Scott <acepilot@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Sunday, October 9, 2011 4:39 PM
Subject: Re: [w1ghz-transverter-builders] 10 to 25 W Amp

Approximately 1W in at 1296 should give around 30W out if using the 75W amp from W6PQL. I have one of those amps awaiting some build time. I think it would be a good match for what you are looking for, at least at 1296.

http://www.w6pql.com/xrf-286_amplifiers_for_23cm.htm

N0EDV

On 10-9-2011 23:01, Ted M wrote:
Hi,
>
>Thanks for your help. I have an Alinco that puts out 1W at 1.2 going into 50 feet of LMR400. The amount out probably falls under part 15 than part 97.
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>Thanks for your reply
>Best Regards
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>Ted
>KB6UDA
>
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>From: Scott <acepilot@...>
>To: w1ghz-transverter-builders@yahoogroups.com
>Sent: Sunday, October 9, 2011 3:04 PM
>Subject: Re: [w1ghz-transverter-builders] 10 to 25 W Amp
>
>

>50 feet of LMR-400 loses about 2 dB at 900 Mhz and about a bit maybe 2.5 dB at 1296.
>
>Depending on your drive power available at 1296, a W6PQL amp might be the ticket.
>http://www.w6pql.com/
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>I'm not aware of many amps in that power range for 900 MHz. The CDMA amps on eBay are available in 150 and 300 Watt versions. If you have a fairly low power of drive available at 900 MHz, the 150W amp could be used. In ones I have built up, generally 0.5W of drive gives about 20W out, 1W gives about 45W out, up to about 5W of drive giving around 100W out.
>
>
>N0EDV
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>
>On 10-9-2011 21:38, kb6uda wrote:
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>>Hi,
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>>Im looking for an Amp in the 10 to 25 Watt range for my
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>>Does anyone have any suggestions on a good company.
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>>Thanks and 73
>>Sincerely,
>>Ted
>>KB6UDA
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320. Re: [w1ghz-transverter-builders] 10 to 25 W Amp

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-09 23:54:56 UTC
From: Bart Jahnke
Topic: 312 Message: 320
Attachments: 2 described; binary payloads are missing from this source WARC

Hi Ted,

For 1296, I have the SBMS $55 kit. Works great. Lots of headroom at low drive and can tun at 12 or 24 vdc.

See http://km5po.net/SBMS_1296_amp_kit.html

From the SBMS Newsletter - For Sale 30w 1296 MHz PA kit $50 + $5 for US shipping Chris Shoaff cshoaff@...

73, Bart W9JJ

On Sun, Oct 9, 2011 at 7:49 PM, Ted M <kb6uda@...> wrote:

> Hi,
>
> Thanks for the reply. I dont feel confortable with too much power at those
> bands. That is why I want something in the 10 to 25W range. I preffer 10W
> and that is what im primarly looking for.
>
> Again Thanks and 73
> Sincerely,
> Ted
> KB6UDA
>
> *From:* Scott <acepilot@...>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> *Sent:* Sunday, October 9, 2011 4:39 PM
> *Subject:* Re: [w1ghz-transverter-builders] 10 to 25 W Amp
>
> Approximately 1W in at 1296 should give around 30W out if using the 75W
> amp from W6PQL. I have one of those amps awaiting some build time. I think
> it would be a good match for what you are looking for, at least at 1296.
>
> http://www.w6pql.com/xrf-286_amplifiers_for_23cm.htm
>
>
>
> N0EDV
>
>
>
> On 10-9-2011 23:01, Ted M wrote:
>
> Hi,

>
> Thanks for your help. I have an Alinco that puts out 1W at 1.2 going into
> 50 feet of LMR400. The amount out probably falls under part 15 than part 97.
> I dont want something that puts out a lot of power at these freq that is
> why I want something in the 10W class for both 900 Mc and 1.2 GHz.
>
> Thanks for your reply
> Best Regards
> Sincerely,
> Ted
> KB6UDA
>
> *From:* Scott <acepilot@...> <acepilot@...>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> *Sent:* Sunday, October 9, 2011 3:04 PM
> *Subject:* Re: [w1ghz-transverter-builders] 10 to 25 W Amp
>
> 50 feet of LMR-400 loses about 2 dB at 900 Mhz and about a bit maybe 2.5
> dB at 1296.
>
> Depending on your drive power available at 1296, a W6PQL amp might be the
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> http://www.w6pql.com/
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> I'm not aware of many amps in that power range for 900 MHz. The CDMA amps
> on eBay are available in 150 and 300 Watt versions. If you have a fairly
> low power of drive available at 900 MHz, the 150W amp could be used. In
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> about 45W out, up to about 5W of drive giving around 100W out.
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> N0EDV
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> On 10-9-2011 21:38, kb6uda wrote:
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> Hi,
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> Im looking for an Amp in the 10 to 25 Watt range for my
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> Does anyone have any suggestions on a good company.
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> One of the reasons I want the amp is IM using 50 feet LMR400 with N
> connectors and know IM loosing a lot of power. I dont know what the loses
> are at those freq with 50 feet of LMR400 with N connectors but I believe IM
> loosing a lot of power.
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> Thanks and 73
> Sincerely,
> Ted
> KB6UDA
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> --
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>

321. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-11 21:09:10 UTC
From: ferrymanr
Topic: 306 Message: 321

Hi Adam

Just to let you know I tried some inductance in series with R2 at the A1 end. No improvement. Then lifted the A2 end of R3 and sandwiched an SMD 68nH chip inductor in series. Output went up by 3 or 4dB. This was the only low value chip inductor I had but seems fine so will leave it at that. It was easier than winding turns in the lead. If I need more gain I could try the same on A3. At present I am getting +7dBm at the mixer which suits me fine. Iterestingly my spurious resonses at 1152MHz +/- 192MHz did not increase so are effectively 3 or 4 dB lower.

73 de Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> with era-3 you should have some 3db spare, just enough for some filter..
>
> GN
> 9A4QV in 5N
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@> wrote:
> >
> > OK Adam. It looks as if I can get everything working at the right levels without too much work. It would have been nice to have some LO drive to spare as I had envisaged placing a small attenuator between the LO board and transverter board This would have given me the option later of replacing the attenuator with an external high Q filter to further clean up the 1152MHz if needed.
> >
> > 73 de Dick G4BBH
> >
> > --- In w1ghz-transverter-builders@yahoogroups.com, "adam"
> >
> > <adam9a4qv@> wrote:
> > >
> > > Hello Dick,
> > >
> > > well, nice job done and easy to solve your problem.
> > > As you have only -11dBm @ 1152 on the L.O. output and you need some +5dbm to +7dbm at the mixer the gap is 16-18dB.
> > >
> > > Of course, no way that with one MAR-6 in the place A5 (just before) mixer can deliver more than +2dbm. Yes, Paul stated in the article that at the mixer he manage to have +5-7dbm and on the picture there is clearly seen MAR-6 but on the other hand, on the diagram there is only A5 marking with no mmic specified!
> > >
> > > MAR-6 datasheet state P1dB of +2dbm (in the best case).You should consider some rf leaking through the bias resistor, and no MAR-6 on this world can give you there +5dBm.

> > >
> > > You can put in the place of A5 in the transverter ERA-2 (gain 15db) where you can get +4dbm in the best case, or even ERA-3 (gain 21dB) with +10dbm in the best case. Some RF leaking through the bias resistor will bring this level down a bit. Playing with the bias resistor can give you desired level required for the mixer.
> > >
> > > My sugestion: ERA-2 or ERA-3
> > >
> > > let us know the result..
> > >
> > > Adam,9A4QV
> > >
> >
>

322. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-12 05:43:57 UTC
From: adam
Topic: 306 Message: 322

Hi Dick,

Hmmm, I am litle bit confused....
I can not explain the effect with the series inductance on the output of the mmic. Both mmic and filter should be 50 ohm input/output and mached properly.
What MMIC do you have in the place of A5 in the transverter just before mixer?

I should look for this MAR-6 with +7dBm P1dB ;-)

Adam, 9A4QV

--- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@...> wrote:
>
> Hi Adam
>
> Just to let you know I tried some inductance in series with R2 at the A1 end. No improvement. Then lifted the A2 end of R3 and sandwiched an SMD 68nH chip inductor in series. Output went up by 3 or 4dB. This was the only low value chip inductor I had but seems fine so will leave it at that. It was easier than winding turns in the lead. If I need more gain I could try the same on A3. At present I am getting +7dBm at the mixer which suits me fine. Iterestingly my spurious resonses at 1152MHz +/- 192MHz did not increase so are effectively 3 or 4 dB lower.
>
> 73 de Dick G4BBH
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> --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@> wrote:
> >
> > with era-3 you should have some 3db spare, just enough for some filter..
> >
> > GN
> > 9A4QV in 5N
> >
> > --- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@> wrote:
> > >
> > > OK Adam. It looks as if I can get everything working at the right levels without too much work. It would have been nice to have some LO drive to spare as I had envisaged placing a small attenuator between the LO board and transverter board This would have given me the option later of replacing the attenuator with an external high Q filter to further clean up the 1152MHz if needed.
> > >
> > > 73 de Dick G4BBH
> > >
> > > --- In w1ghz-transverter-builders@yahoogroups.com, "adam"
> > >
> > > <adam9a4qv@> wrote:
> > > >

> > > > Hello Dick,
> > > >
> > > > well, nice job done and easy to solve your problem.
> > > > As you have only -11dBm @ 1152 on the L.O. output and you need some +5dbm to +7dbm at the mixer the gap is 16-18dB.
> > > >
> > > > Of course, no way that with one MAR-6 in the place A5 (just before) mixer can deliver more than +2dbm. Yes, Paul stated in the article that at the mixer he manage to have +5-7dbm and on the picture there is clearly seen MAR-6 but on the other hand, on the diagram there is only A5 marking with no mmic specified!
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> > > > MAR-6 datasheet state P1dB of +2dbm (in the best case).You should consider some rf leaking through the bias resistor, and no MAR-6 on this world can give you there +5dBm.
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> > > > You can put in the place of A5 in the transverter ERA-2 (gain 15db) where you can get +4dbm in the best case, or even ERA-3 (gain 21dB) with +10dbm in the best case. Some RF leaking through the bias resistor will bring this level down a bit. Playing with the bias resistor can give you desired level required for the mixer.
> > > >
> > > > My sugestion: ERA-2 or ERA-3
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> > > > let us know the result..
> > > >
> > > > Adam,9A4QV
> > > >
> > >
> >
>

323. Re: [w1ghz-transverter-builders] Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-12 09:50:15 UTC
From: Scott
Topic: 306 Message: 323
Attachments: 1 described; binary payloads are missing from this source WARC

Adam,

The inductance is a high impedance to the RF such that its impedance, in series with the bias resistor is a larger value that is effectively connected from the output line to ground AC-wise than without the inductance. If you look at the datasheets on any of the MAR and ERA devices, Minicircuits show these inductances as optional, but from experience, they do help getting more RF to pass to the following stage. In one of my transverters, I needed about 8 dB of gain at 144 MHz and used a MAR-4. Without the inductance, I got about 3 dB of gain...with the inductor, I got about 7 dB of gain.

As far as the MAR-6 with +7 dBm P1dB, well, I can't help you there!

N0EDV

On 10-12-2011 05:43, adam wrote:
>
> Hi Dick,
>
> Hmmm, I am litle bit confused....
> I can not explain the effect with the series inductance on the output
> of the mmic. Both mmic and filter should be 50 ohm input/output and
> mached properly.
> What MMIC do you have in the place of A5 in the transverter just
> before mixer?
>
> I should look for this MAR-6 with +7dBm P1dB ;-)
>
> Adam, 9A4QV
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, "ferrymanr"
> <g4bbh@...> wrote:
> >
> > Hi Adam
> >
> > Just to let you know I tried some inductance in series with R2 at
> the A1 end. No improvement. Then lifted the A2 end of R3 and
> sandwiched an SMD 68nH chip inductor in series. Output went up by 3 or
> 4dB. This was the only low value chip inductor I had but seems fine so
> will leave it at that. It was easier than winding turns in the lead.
> If I need more gain I could try the same on A3. At present I am
> getting +7dBm at the mixer which suits me fine. Iterestingly my
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> effectively 3 or 4 dB lower.
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> > --- In w1ghz-transverter-builders@yahoogroups.com
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> > > >
> > > > OK Adam. It looks as if I can get everything working at the
> right levels without too much work. It would have been nice to have
> some LO drive to spare as I had envisaged placing a small attenuator
> between the LO board and transverter board This would have given me
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> > > > <adam9a4qv@> wrote:
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> > > > > Hello Dick,
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> > > > > well, nice job done and easy to solve your problem.
> > > > > As you have only -11dBm @ 1152 on the L.O. output and you need
> some +5dbm to +7dbm at the mixer the gap is 16-18dB.
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> > > > > Of course, no way that with one MAR-6 in the place A5 (just
> before) mixer can deliver more than +2dbm. Yes, Paul stated in the
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> resistor will bring this level down a bit. Playing with the bias
> resistor can give you desired level required for the mixer.
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> > > > > My sugestion: ERA-2 or ERA-3
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> > > > > >
> > > > >
> > > >
> >
>

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324. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-12 10:48:06 UTC
From: adam
Topic: 306 Message: 324

Scott,
you are right, I agree with you.
I did not read properly the Dick post. I thought that he lift up the output of the MMIC and connect the 68nH in series with the mmic and filter. Because of that I was confused, knowing that input and output are 50 ohms and no need for any kind of matching.

Of course, series inductor with the bias resistor (optional in the data sheet) is what I am using in all my projects.

Adam, 9A4QV

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> Adam,
>
> The inductance is a high impedance to the RF such that its impedance, in
> series with the bias resistor is a larger value that is effectively
> connected from the output line to ground AC-wise than without the
> inductance. If you look at the datasheets on any of the MAR and ERA
> devices, Minicircuits show these inductances as optional, but from
> experience, they do help getting more RF to pass to the following
> stage. In one of my transverters, I needed about 8 dB of gain at 144
> MHz and used a MAR-4. Without the inductance, I got about 3 dB of
> gain...with the inductor, I got about 7 dB of gain.
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> N0EDV
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> On 10-12-2011 05:43, adam wrote:
> >
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> > > Just to let you know I tried some inductance in series with R2 at
> > the A1 end. No improvement. Then lifted the A2 end of R3 and
> > sandwiched an SMD 68nH chip inductor in series. Output went up by 3 or
> > 4dB. This was the only low value chip inductor I had but seems fine so
> > will leave it at that. It was easier than winding turns in the lead.
> > If I need more gain I could try the same on A3. At present I am
> > getting +7dBm at the mixer which suits me fine. Iterestingly my
> > spurious resonses at 1152MHz +/- 192MHz did not increase so are
> > effectively 3 or 4 dB lower.
> > >
> > > 73 de Dick G4BBH
> > >
> > > --- In w1ghz-transverter-builders@yahoogroups.com
> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, "adam"
> > <adam9a4qv@> wrote:
> > > >
> > > > with era-3 you should have some 3db spare, just enough for some
> > filter..
> > > >
> > > > GN
> > > > 9A4QV in 5N
> > > >
> > > > --- In w1ghz-transverter-builders@yahoogroups.com
> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, "ferrymanr"
> > <g4bbh@> wrote:
> > > > >
> > > > > OK Adam. It looks as if I can get everything working at the
> > right levels without too much work. It would have been nice to have
> > some LO drive to spare as I had envisaged placing a small attenuator
> > between the LO board and transverter board This would have given me
> > the option later of replacing the attenuator with an external high Q
> > filter to further clean up the 1152MHz if needed.
> > > > > >
> > > > > 73 de Dick G4BBH
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> > > > > --- In w1ghz-transverter-builders@yahoogroups.com
> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, "adam"
> > > > > >
> > > > > <adam9a4qv@> wrote:
> > > > > > >
> > > > > > Hello Dick,
> > > > > > >
> > > > > > well, nice job done and easy to solve your problem.
> > > > > > As you have only -11dBm @ 1152 on the L.O. output and you need
> > some +5dbm to +7dbm at the mixer the gap is 16-18dB.
> > > > > > >

> > > > > > Of course, no way that with one MAR-6 in the place A5 (just
> > before) mixer can deliver more than +2dbm. Yes, Paul stated in the
> > article that at the mixer he manage to have +5-7dbm and on the picture
> > there is clearly seen MAR-6 but on the other hand, on the diagram
> > there is only A5 marking with no mmic specified!
> > > > > > >
> > > > > > > MAR-6 datasheet state P1dB of +2dbm (in the best case).You
> > should consider some rf leaking through the bias resistor, and no
> > MAR-6 on this world can give you there +5dBm.
> > > > > > >
> > > > > > > You can put in the place of A5 in the transverter ERA-2 (gain
> > 15db) where you can get +4dbm in the best case, or even ERA-3 (gain
> > 21dB) with +10dbm in the best case. Some RF leaking through the bias
> > resistor will bring this level down a bit. Playing with the bias
> > resistor can give you desired level required for the mixer.
> > > > > > >
> > > > > > > My sugestion: ERA-2 or ERA-3
> > > > > > >
> > > > > > > let us know the result..
> > > > > > >
> > > > > > > Adam,9A4QV
> > > > > > >
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> > --
>

325. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-12 11:16:54 UTC
From: ferrymanr
Topic: 306 Message: 325

As Scott says the inductance is inseries with the resistor at the RF 'hot' end as per MiniCircuits Application schematic.

Regarding the MAR-6 at +7dBm I realise this is above the spec but it works! Perhaps I am running into non linearity but this may not matter with a single carrier in. There is no increase in spurious signals close in or up to 1.6GHz (the limit of this spectrum analyzer) nor any new new spurs. Maybe some harmonic content beyond that but should not be a problem. The specs I have for the MAR-6 only show typical IP1 and IP3 for 0.5GHz.

73 de Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> Hi Dick,
>
> Hmmm, I am litle bit confused....
> I can not explain the effect with the series inductance on the output of the mmic. Both mmic and filter should be 50 ohm input/output and mached properly.
> What MMIC do you have in the place of A5 in the transverter just before mixer?
>
> I should look for this MAR-6 with +7dBm P1dB ;-)
>
> Adam, 9A4QV
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@> wrote:
> >
> > Hi Adam
> >
> > Just to let you know I tried some inductance in series with R2 at the A1 end. No improvement. Then lifted the A2 end of R3 and sandwiched an SMD 68nH chip inductor in series. Output went up by 3 or 4dB. This was the only low value chip inductor I had but seems fine so will leave it at that. It was easier than winding turns in the lead. If I need more gain I could try the same on A3. At present I am getting +7dBm at the mixer which suits me fine. Iterestingly my spurious resonses at 1152MHz +/- 192MHz did not increase so are effectively 3 or 4 dB lower.
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> > > --- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@> wrote:

> > > >
> > > > OK Adam. It looks as if I can get everything working at the right levels without too much work. It would have been nice to have some LO drive to spare as I had envisaged placing a small attenuator between the LO board and transverter board This would have given me the option later of replacing the attenuator with an external high Q filter to further clean up the 1152MHz if needed.
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> > > > <adam9a4qv@> wrote:
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> > > > > well, nice job done and easy to solve your problem.
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> > > > > Of course, no way that with one MAR-6 in the place A5 (just before) mixer can deliver more than +2dbm. Yes, Paul stated in the article that at the mixer he manage to have +5-7dbm and on the picture there is clearly seen MAR-6 but on the other hand, on the diagram there is only A5 marking with no mmic specified!
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> > > > > MAR-6 datasheet state P1dB of +2dbm (in the best case).You should consider some rf leaking through the bias resistor, and no MAR-6 on this world can give you there +5dBm.
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> > > > > My sugestion: ERA-2 or ERA-3
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> > > > > let us know the result..
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326. Re: [w1ghz-transverter-builders] Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-12 21:35:26 UTC
From: Scott
Topic: 306 Message: 326

Roget that! I thought maybe that's what you were thinking after I sent
my reply. I am a believer in that little inductor in the supply line!!

On 10-12-2011 10:48, adam wrote:
>
> Scott,
> you are right, I agree with you.
> I did not read properly the Dick post. I thought that he lift up the
> output of the MMIC and connect the 68nH in series with the mmic and
> filter. Because of that I was confused, knowing that input and output
> are 50 ohms and no need for any kind of matching.
>
> Of course, series inductor with the bias resistor (optional in the
> data sheet) is what I am using in all my projects.
>
> Adam, 9A4QV
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Scott
> <acepilot@...> wrote:
> >
>

327. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 06:54:20 UTC
From: adam
Topic: 306 Message: 327

OK guys, so problem solved at the end.
Probably we can see now more people doing this simple improvement on the oscillator looking for the right SMD coil value.

I believe that L/4 peace of wire in a form of a small coil can do the same.

It will be nice to hear how are you happy with the 64Mhz canned oscillator. I am still using the "first" version with the 80Mhz oscillator but not so happy with the drift. Sometimes the oscillator wont start. It is all about finding the best one among the several smaples. So, at the moment I am in the process of building a simple low noise PLL for this project.

QV

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> Roget that! I thought maybe that's what you were thinking after I sent
> my reply. I am a believer in that little inductor in the supply line!!
>
> On 10-12-2011 10:48, adam wrote:
> >
> > Scott,
> > you are right, I agree with you.
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> > Of course, series inductor with the bias resistor (optional in the
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> > Adam, 9A4QV
> >
> > --- In w1ghz-transverter-builders@yahoogroups.com
> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Scott
> > <acepilot@> wrote:
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328. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 10:59:41 UTC
From: ferrymanr
Topic: 306 Message: 328

Regarding the canned oscillator I tried a large number of DIP8 and DIP16 computer type 64MHz oscillators and found one out of 20 that settles within a couple of hundred Herz at the 1152 MHz output. Any temperature change, the slightest breath would make it drift by hundreds of Hz at 1152. A bit of heat insulation helps but not really stable enough.
I then managed to obtain a 64MHz TCXO in a DIP16 can. I can set this spot on and it is stable in the transverter box to within +/- 50Hz at 1152MHz. The main problem is that phase noise is very much worse.

During tests of my tranverter interface last night I accidentally got my TX/RX switching reversed and ran 500mW into the IF port and have blown the mixer :-(I'm having problems finding where to buy a replacement so all further tests are on hold. From Mini-Circuits the ADE-5 is (in sterling pounds) 12.97 each or ten for 28.90 including postage. Perhaps I will need nine spares! Let this be a warning to others.

73 de Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
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> OK guys, so problem solved at the end.
> Probably we can see now more people doing this simple improvement on the oscillator looking for the right SMD coil value.
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> I believe that L/4 peace of wire in a form of a small coil can do the same.
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> It will be nice to hear how are you happy with the 64Mhz canned oscillator. I am still using the "first" version with the 80Mhz oscillator but not so happy with the drift. Sometimes the oscillator wont start. It is all about finding the best one among the several smaples. So, at the moment I am in the process of building a simple low noise PLL for this project.
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> > > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Scott
> > > <acepilot@> wrote:
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> > >
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329. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 12:57:18 UTC
From: adam
Topic: 306 Message: 329

Sorry to hear that...
Well If this can help you, I am just looking:
http://www.ebay.com/itm/8-Mini-Circuits-ADE-5-SMT-Frequency-Mixer-ICs-/200659385631?pt=LH_DefaultDomain_0&hash=item2eb83b3d1f

Item number: 200659385631

8pcs for 27$ shipping included..
I don't have any spare at home, I am using rms-30 mixers (used) in my simylar projects but the pin-out is different and do not fit to the original board.

You can always ask Paul for a spare ADE-5 based the fact that you already buy the boards from him.

Adam
--- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@...> wrote:
>
> Regarding the canned oscillator I tried a large number of DIP8 and DIP16 computer type 64MHz oscillators and found one out of 20 that settles within a couple of hundred Herz at the 1152 MHz output. Any temperature change, the slightest breath would make it drift by hundreds of Hz at 1152. A bit of heat insulation helps but not really stable enough.
> I then managed to obtain a 64MHz TCXO in a DIP16 can. I can set this spot on and it is stable in the transverter box to within +/- 50Hz at 1152MHz. The main problem is that phase noise is very much worse.
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> During tests of my tranverter interface last night I accidentally got my TX/RX switching reversed and ran 500mW into the IF port and have blown the mixer :-(I'm having problems finding where to buy a replacement so all further tests are on hold. From Mini-Circuits the ADE-5 is (in sterling pounds) 12.97 each or ten for 28.90 including postage. Perhaps I will need nine spares! Let this be a warning to others.
>
> 73 de Dick G4BBH
>
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@> wrote:
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> > OK guys, so problem solved at the end.
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> > I believe that L/4 peace of wire in a form of a small coil can do the same.
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> > It will be nice to hear how are you happy with the 64Mhz canned oscillator. I am still using the "first" version with the 80Mhz oscillator but not so happy with the drift. Sometimes the oscillator wont start. It is all about finding the best one among the several

smaples. So, at the moment I am in the process of building a simple low noise PLL for this project.
> >
> > QV
> >
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> >
> > --- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@> wrote:
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330. Re: [w1ghz-transverter-builders] Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 13:46:33 UTC
From: Zack Widup
Topic: 306 Message: 330

That's why I used the KD6OZH PLL circuit for the LO in mine. Using an
LO frequency of 94.75 MHz for 902/3 and 96 MHz for 1296 works just
fine with the LO multiplier board. It defeats the "Keep it simple"
philosophy but is a very stable and low-noise LO.

73, Zack W9SZ

On 10/13/11, adam <adam9a4qv@...> wrote:
> OK guys, so problem solved at the end.
> Probably we can see now more people doing this simple improvement on the
> oscillator looking for the right SMD coil value.
>
> I believe that L/4 peace of wire in a form of a small coil can do the same.
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>> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Scott
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331. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 13:49:26 UTC
From: ferrymanr
Topic: 306 Message: 331

When I looked last night it showed a similar listing as ended so I guess he relisted it today. Sometimes eBay in UK misses listings in USA. Anyway 7 spares should be enough. I seem to make mistakes more often as I get older - I was born during WWII so am probably a mistake myself.

The 'International Microwave Handbook' 2nd edition has a 23cm tranverter (by G4DDK I think). The 144MHz IF RX/TX switching uses diode switching but also has a back to back schottky diode limiter across the RX side to protect against the problem I had. Unfortunately the type number is unreadable on the schematic but should not be too critical.

73 de Dick G4BBH

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> Sorry to hear that...
> Well If this can help you, I am just looking:
> http://www.ebay.com/itm/8-Mini-Circuits-ADE-5-SMT-Frequency-Mixer-ICs-/200659385631?pt=LH_DefaultDomain_0&hash=item2eb83b3d1f
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> Item number: 200659385631
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> 8pcs for 27$ shipping included..
> I don't have any spare at home, I am using rms-30 mixers (used) in my simylar projects but the pin-out is different and do not fit to the original board.
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332. Re: [w1ghz-transverter-builders] Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 14:10:50 UTC
From: Steve Bunch
Topic: 306 Message: 332

If you talk to your local Mini-Circuits dealer/representative (check their website -- http://www.minicircuits.com/contact/int_sales_reps.html), they will often get you one or two samples for free. I got an email from our local rep once after I had ordered some parts from MiniCircuits over the web, asking why I didn't just call him and ask for samples of the ones I'd ordered only one of. Worth a try!

Steve, K9SRB

On Oct 13, 2011, at 8:49 AM, ferrymanr wrote:

> When I looked last night it showed a similar listing as ended so I guess he relisted it today. Sometimes eBay in UK misses listings in USA. Anyway 7 spares should be enough. I seem to make mistakes more often as I get older - I was born during WWII so am probably a mistake myself.
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> > Item number: 200659385631
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> > 8pcs for 27$ shipping included..
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> > You can always ask Paul for a spare ADE-5 based the fact that you already buy the boards from him.
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> > Adam
> > --- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@> wrote:
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> > > Regarding the canned oscillator I tried a large number of DIP8 and DIP16 computer type 64MHz oscillators and found one out of 20 that settles within a couple of hundred Herz at the 1152 MHz output. Any temperature change, the slightest breath would make it drift by

hundreds of Hz at 1152. A bit of heat insulation helps but not really stable enough.
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> > > 73 de Dick G4BBH
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> > > --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@> wrote:
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> > > >
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> > > > > > Of course, series inductor with the bias resistor (optional in the
> > > > > > data sheet) is what I am using in all my projects.
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> > > > > > Adam, 9A4QV

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333. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 17:11:54 UTC
From: ferrymanr
Topic: 306 Message: 333

Thanks Steve but already bought the ones on eBay - US$9.24 postage was a bit steep for 8 tiny MMICs though. Next time will try the local rep.

Whilst I am waiting I will start on the next two boards (13cm pair).

73 de Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, Steve Bunch <steve.bunch@...> wrote:
>
> If you talk to your local Mini-Circuits dealer/representative (check their website -- http://www.minicircuits.com/contact/int_sales_reps.html), they will often get you one or two samples for free. I got an email from our local rep once after I had ordered some parts from MiniCircuits over the web, asking why I didn't just call him and ask for samples of the ones I'd ordered only one of. Worth a try!
>
> Steve, K9SRB
>
> On Oct 13, 2011, at 8:49 AM, ferrymanr wrote:
>
> > When I looked last night it showed a similar listing as ended so I guess he relisted it today. Sometimes eBay in UK misses listings in USA. Anyway 7 spares should be enough. I seem to make mistakes more often as I get older - I was born during WWII so am probably a mistake myself.
> >
> > The 'International Microwave Handbook' 2nd edition has a 23cm tranverter (by G4DDK I think). The 144MHz IF RX/TX switching uses diode switching but also has a back to back schottky diode limiter across the RX side to protect against the problem I had. Unfortunately the type number is unreadable on the schematic but should not be too critical.
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> > 73 de Dick G4BBH
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> > --- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@> wrote:
> > >
> > >
> > > Sorry to hear that...
> > > Well If this can help you, I am just looking:
> > > http://www.ebay.com/itm/8-Mini-Circuits-ADE-5-SMT-Frequency-Mixer-ICs-/200659385631?pt=LH_DefaultDomain_0&hash=item2eb83b3d1f
> > >
> > > Item number: 200659385631
> > >
> > > 8pcs for 27$ shipping included..
> > > I don't have any spare at home, I am using rms-30 mixers (used) in my simylar projects but the pin-out is different and do not fit to the original board.
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> > > You can always ask Paul for a spare ADE-5 based the fact that you already buy the boards from him.
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334. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 17:15:55 UTC
From: adam
Topic: 306 Message: 334

Dick, how do you plan to solve the different band coverage 2304-2320 problem?

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, "ferrymanr" <g4bbh@...> wrote:
>
> Thanks Steve but already bought the ones on eBay - US$9.24 postage was a bit steep for 8 tiny MMICs though. Next time will try the local rep.
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> Whilst I am waiting I will start on the next two boards (13cm pair).
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335. Re: 1296 RSU Local Oscillator 1152MHz

Yahoo group: w1ghz-transverter-builders
Date: 2011-10-13 21:11:02 UTC
From: ferrymanr
Topic: 306 Message: 335

The transverter board should be fine with it's pipecaps.
Modification of the 720 LO means a hard to get crystal, slightly reducing the value of one capacitor on each comb line and a big headache with the hairpin filter. If all else fails trim a tiny bit off each section wit a scalpel and accept some loss.

My answer is to use an IF of 170MHz..... Although my pair of FT-817s can't be broadbanded beyond 152 MHz I do have a VHF transverter which can be easily modified - dual conversion

Dick G4BBH

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> Dick, how do you plan to solve the different band coverage 2304-2320 problem?
>
> Adam
>
>

336. Re: W1GHZ 9cm rover x-verter

Yahoo group: w1ghz-transverter-builders
Date: 2011-12-03 13:09:56 UTC
From: adam
Topic: 289 Message: 336

http://croatia-microwave.blogspot.com/2011/10/w1ghz-rover-transverter-for-3400-mhz-eu.html

Adam, 9A4QV

--- In w1ghz-transverter-builders@yahoogroups.com, "adam" <adam9a4qv@...> wrote:
>
> EU portion of the band 3400 MHz with modified rover Transverter.
> All power supply is 9V.
> Output power 25mW.
> IF 436 MHz.
> L.O. 741 MHz (S53MV design)
> 741 x 4 + 436 = 3400 MHz
> Extra AH-102A MMIC delivering 250mW on 3400MHz
> Sequencer with attenuator and RF/PTT automatic switching for easy FT-817 operation
>
> Some photos:
> http://hrvhf.net/forum/index.php?topic=1816.msg16153#new
>
> Soon on my blog pages
>
> 9A4QV
>

337. Re: W1GHZ 9cm rover x-verter

Yahoo group: w1ghz-transverter-builders
Date: 2011-12-05 14:16:11 UTC
From: David Palm
Topic: 289 Message: 337

This is a *great* write-up, Adam. I am sooooo anxious to get back to getting my W1GHZ transverters on the air. I'm really glad you are out ahead of us working the bugs out.

Did you do the modification using the PIN diodes instead of the resistor splitter on the receiver side of this transverter, as you did with some others?

73,

David W9HQ

338. Re: W1GHZ 9cm rover x-verter

Yahoo group: w1ghz-transverter-builders
Date: 2011-12-06 05:38:35 UTC
From: adam
Topic: 289 Message: 338

Hello David,

The PIN diode modification was not implemented on the 13 & 9cm version. It can be done but with all components on the one side of the PCB. On the pipe cap side there is no room for extra components.

Adam, 9A4QV

--- In w1ghz-transverter-builders@yahoogroups.com, David Palm <thepalmhq@...> wrote:
>
> This is a *great* write-up, Adam. I am sooooo anxious to get back to
> getting my W1GHZ transverters on the air. I'm really glad you are out ahead
> of us working the bugs out.
>
> Did you do the modification using the PIN diodes instead of the resistor
> splitter on the receiver side of this transverter, as you did with some
> others?
>
> 73,
>
> David W9HQ
>

339. Any 'GHZ xvrtrs on this June?

Yahoo group: w1ghz-transverter-builders
Date: 2012-05-31 17:36:41 UTC
From: Joshua M. Arritt
Topic: 339 Message: 339

My 1296 "trashverter" intends to make another try.... it was heard for
the first time by AD4HG and WA4PGI last Monday!

902 and 2304 might be there too, if I can ring 'em out on the bench in time.

73 ES GL!

- Josh / KF4YLM

340. Re: [w1ghz-transverter-builders] Any 'GHZ xvrtrs on this June?

Yahoo group: w1ghz-transverter-builders
Date: 2012-05-31 18:44:20 UTC
From: Zack Widup
Topic: 339 Message: 340

I've been using the 903 transverter for a year and it's quite good.
I've made many QSO's with it. I'll have it with me on the hill in
EN50rl for the June contest.

I got several sets of boards for the 1296 LO/transverter. I plan on
eventually building a 1296 transverter with one set to replace my
original KK7B 1296 transverter. One of the others is going in my 47
GHz transverter as a 1296 IF. I'm working on that now. The other might
go in a 78 GHz transverter as a 1296 IF or I might make the
arrangement so I can use the other 1296 IF interchangeably for 47 and
78 GHz.

73, Zack W9SZ

On 5/31/12, Joshua M. Arritt <jarritt@...> wrote:
> My 1296 "trashverter" intends to make another try.... it was heard for
> the first time by AD4HG and WA4PGI last Monday!
>
> 902 and 2304 might be there too, if I can ring 'em out on the bench in
> time.
>
> 73 ES GL!
>
> - Josh / KF4YLM
>

341. Re: [w1ghz-transverter-builders] Any 'GHZ xvrtrs on this June?

Yahoo group: w1ghz-transverter-builders
Date: 2012-05-31 22:33:34 UTC
From: Scott
Topic: 339 Message: 341
Attachments: 1 described; binary payloads are missing from this source WARC

Yes, my W1GHZ 222 transverter will be on.

N0EDV
Multi-Op (With AI9Z) in EN67 (yes, THAT rare EN67!)

On 5-31-2012 17:36, Joshua M. Arritt wrote:
>
> My 1296 "trashverter" intends to make another try.... it was heard for
> the first time by AD4HG and WA4PGI last Monday!
>
> 902 and 2304 might be there too, if I can ring 'em out on the bench in
> time.
>
> 73 ES GL!
>
> - Josh / KF4YLM
>
>

--

342. changing of crystal on 1152 LO board

Yahoo group: w1ghz-transverter-builders
Date: 2012-06-30 08:07:58 UTC
From: w8iss
Topic: 342 Message: 342

Wondering if changing the 64MHz crystal to a 61.333MHz crystal would effect performance of the output?

Looking to use this as a temporary replacement for my VERY unstable MicroLO in my DEMI 10GHz transverter.

Digikey has a few programmable oscillators that can be programmed by them for a couple of dollars

James W8ISS

343. Re: [w1ghz-transverter-builders] changing of crystal on 1152 LO board

Yahoo group: w1ghz-transverter-builders
Date: 2012-06-30 14:31:49 UTC
From: Zack Widup
Topic: 342 Message: 343

Hi James,

You will probably need to add a couple pF to each of the 190 MHz
stripline filters. Two or three pF each should do it.

Your output frequency appears to be close to the lower edge of the
1152 MHz hairpin filter but I think it will get by. You just might
need an extra MMIC stage to make up the difference in output.

73, Zack W9SZ

On 6/30/12, w8iss <w8iss@...> wrote:
> Wondering if changing the 64MHz crystal to a 61.333MHz
> crystal would effect performance of the output?
>
> Looking to use this as a temporary replacement for my
> VERY unstable MicroLO in my DEMI 10GHz transverter.
>
> Digikey has a few programmable oscillators that can be
> programmed by them for a couple of dollars
>
> James W8ISS
>
>

344. New amps for the Cheap Xvrtrs

Yahoo group: w1ghz-transverter-builders
Date: 2012-11-27 15:31:52 UTC
From: Joshua M. Arritt
Topic: 344 Message: 344

Just tripped across Paul's updated small PAs to follow the "cheap xvrtrs" project papers:

http://www.w1ghz.org/small_proj/ADL5324_Power_Amplifier.pdf

http://www.w1ghz.org/small_proj/GVA-84_amplifier.pdf

Looks promising!

Anyone have a chance to play with these amps?

73,
- Josh / KF4YLM

345. Re: [w1ghz-transverter-builders] New amps for the Cheap Xvrtrs

Yahoo group: w1ghz-transverter-builders
Date: 2012-11-27 15:51:47 UTC
From: Zack Widup
Topic: 344 Message: 345

These should be nice little intermediate amps if you have a FET that needs
20-23 dBm of drive. Looks like another winter project coming up!

73, Zack W9SZ

On Tue, Nov 27, 2012 at 9:31 AM, Joshua M. Arritt <jarritt@...> wrote:

> **
>
>
> Just tripped across Paul's updated small PAs to follow the "cheap
> xvrtrs" project papers:
>
> http://www.w1ghz.org/small_proj/ADL5324_Power_Amplifier.pdf
>
> http://www.w1ghz.org/small_proj/GVA-84_amplifier.pdf
>
> Looks promising!
>
> Anyone have a chance to play with these amps?
>
> 73,
> - Josh / KF4YLM
>
>

346. 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 13:02:44 UTC
From: ferrymanr
Topic: 346 Message: 346

Paul did do some work on a 10GHz transverter some years back. It was a single board multiplier chain, mixer and rf stages with lots of 1/2" pipe caps and just needed a stable oscillator source. Does anyone know if he ever made a board available? I want to try getting onto 10GHz/3cm at a reasonable cost.
Dick G4BBH

347. Re: [w1ghz-transverter-builders] 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 13:48:59 UTC
From: Dean Denter
Topic: 346 Message: 347

Don't know of anything from Paul -- but Graham VK3XDK has a 10G board
available, mine is about 1/2 built (work keeps getting in the way).

regards,
Dean -- VA3CDD

On Sat, Dec 8, 2012 at 8:02 AM, ferrymanr <g4bbh@btinternet.com> wrote:

> **
>
>
> Paul did do some work on a 10GHz transverter some years back. It was a
> single board multiplier chain, mixer and rf stages with lots of 1/2" pipe
> caps and just needed a stable oscillator source. Does anyone know if he
> ever made a board available? I want to try getting onto 10GHz/3cm at a
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> Dick G4BBH
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>
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348. Re: [w1ghz-transverter-builders] 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 16:38:35 UTC
From: Zack Widup
Topic: 346 Message: 348

It might be the board that Down East Microwave uses in its 10 GHz transverter. The design is very similar to the 5760 design Paul put together which appeared in November 1997 QEX. I believe the file is on Paul's website. This 5760 transverter is the design DEMI sells for that band.

It wouldn't be difficult to come up with a similar design for 10 GHz. Paul used 31 mil Duroid 5880 for 5760 GHz but I'd recommend 15 mil Duroid for 10 GHz. The only critical dimensions would be the transmission line widths and the ratrace mixer dimensions. Other than that, it's just a matter of routing the transmission lines to the pipe caps on the board.

73, Zack W9SZ

On 12/8/12, ferrymanr <g4bbh@...> wrote:
> Paul did do some work on a 10GHz transverter some years back. It was a
> single board multiplier chain, mixer and rf stages with lots of 1/2" pipe
> caps and just needed a stable oscillator source. Does anyone know if he
> ever made a board available? I want to try getting onto 10GHz/3cm at a
> reasonable cost.
> Dick G4BBH
>
>
>

349. Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 17:22:48 UTC
From: adam
Topic: 346 Message: 349

Hello Zack,

Where did you get this info regarding the PCB material and thickness, speaking about Paul 5760 pipe cap transverter?

Thanks,
Adam, 9A4QV

P.S. I did manage to make something cheap rover style for 6cm also...

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> It might be the board that Down East Microwave uses in its 10 GHz
> transverter. The design is very similar to the 5760 design Paul put
> together which appeared in November 1997 QEX. I believe the file is on
> Paul's website. This 5760 transverter is the design DEMI sells for
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> Duroid for 10 GHz. The only critical dimensions would be the
> transmission line widths and the ratrace mixer dimensions. Other than
> that, it's just a matter of routing the transmission lines to the pipe
> caps on the board.
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> 73, Zack W9SZ
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> On 12/8/12, ferrymanr <g4bbh@...> wrote:
> > Paul did do some work on a 10GHz transverter some years back. It was a
> > single board multiplier chain, mixer and rf stages with lots of 1/2" pipe
> > caps and just needed a stable oscillator source. Does anyone know if he
> > ever made a board available? I want to try getting onto 10GHz/3cm at a
> > reasonable cost.
> > Dick G4BBH
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350. RE: [w1ghz-transverter-builders] Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 18:01:29 UTC
From: Danny Pease
Topic: 346 Message: 350
Attachments: 2 described; binary payloads are missing from this source WARC

I am still in the brain storming mode for a (cheap) home brew 10 GHz transverter. I am pretty well set on my mixer design and layout, but still have a good bit of research to do on stripline filters. Any practical ideas on a simple design would be greatly appreciated.

Danny NG9R

From: w1ghz-transverter-builders@yahoogroups.com [mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of adam
Sent: Saturday, December 08, 2012 11:23 AM
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] Re: 10GHz transverter?

Hello Zack,

Where did you get this info regarding the PCB material and thickness, speaking about Paul 5760 pipe cap transverter?

Thanks,
Adam, 9A4QV

P.S. I did manage to make something cheap rover style for 6cm also...

--- In w1ghz-transverter-builders@yahoogroups.com <mailto:w1ghz-transverter-builders%40yahoogroups.com> , Zack Widup <w9sz.zack@...> wrote:
>
> It might be the board that Down East Microwave uses in its 10 GHz
> transverter. The design is very similar to the 5760 design Paul put
> together which appeared in November 1997 QEX. I believe the file is on
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> 73, Zack W9SZ
>
>
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> > Paul did do some work on a 10GHz transverter some years back. It was a
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> > reasonable cost.
> > Dick G4BBH
> >
> >
> >
>

351. Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 18:10:50 UTC
From: adam
Topic: 346 Message: 351

Danny, what IF do you plan to use with your design?
Strip line filters on 10ghz my have wide BW and high I.L. and reproduction may be a tricky part...

Adam, 9A4QV

--- In w1ghz-transverter-builders@yahoogroups.com, "Danny Pease" <dpease@...> wrote:
>
> I am still in the brain storming mode for a (cheap) home brew 10 GHz
> transverter. I am pretty well set on my mixer design and layout, but still
> have a good bit of research to do on stripline filters. Any practical ideas
> on a simple design would be greatly appreciated.
>
>
>
> Danny NG9R
>
>
>
>
>
> From: w1ghz-transverter-builders@yahoogroups.com
> [mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of adam
> Sent: Saturday, December 08, 2012 11:23 AM
> To: w1ghz-transverter-builders@yahoogroups.com
> Subject: [w1ghz-transverter-builders] Re: 10GHz transverter?
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> Hello Zack,
>
> Where did you get this info regarding the PCB material and thickness,
> speaking about Paul 5760 pipe cap transverter?
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> Thanks,
> Adam, 9A4QV
>
> P.S. I did manage to make something cheap rover style for 6cm also...
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com> , Zack Widup
> <w9sz.zack@> wrote:
> >

> > It might be the board that Down East Microwave uses in its 10 GHz
> > transverter. The design is very similar to the 5760 design Paul put
> > together which appeared in November 1997 QEX. I believe the file is on
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> > > caps and just needed a stable oscillator source. Does anyone know if he
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> > > Dick G4BBH
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352. RE: [w1ghz-transverter-builders] Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 18:12:12 UTC
From: Danny Pease
Topic: 346 Message: 352
Attachments: 2 described; binary payloads are missing from this source WARC

I would like to use 1296.

Danny

From: w1ghz-transverter-builders@yahoogroups.com
[mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of adam
Sent: Saturday, December 08, 2012 12:11 PM
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] Re: 10GHz transverter?

Danny, what IF do you plan to use with your design?
Strip line filters on 10ghz my have wide BW and high I.L. and reproduction
may be a tricky part...

Adam, 9A4QV

--- In w1ghz-transverter-builders@yahoogroups.com
<mailto:w1ghz-transverter-builders%40yahoogroups.com> , "Danny Pease"
<dpease@...> wrote:
>
> I am still in the brain storming mode for a (cheap) home brew 10 GHz
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> have a good bit of research to do on stripline filters. Any practical
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> on a simple design would be greatly appreciated.
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> Danny NG9R
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> From: w1ghz-transverter-builders@yahoogroups.com
<mailto:w1ghz-transverter-builders%40yahoogroups.com>
> [mailto:w1ghz-transverter-builders@yahoogroups.com
<mailto:w1ghz-transverter-builders%40yahoogroups.com>] On Behalf Of adam
> Sent: Saturday, December 08, 2012 11:23 AM
> To: w1ghz-transverter-builders@yahoogroups.com
<mailto:w1ghz-transverter-builders%40yahoogroups.com>
> Subject: [w1ghz-transverter-builders] Re: 10GHz transverter?
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> Hello Zack,
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> Where did you get this info regarding the PCB material and thickness,
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> Thanks,
> Adam, 9A4QV
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> P.S. I did manage to make something cheap rover style for 6cm also...
>
> --- In w1ghz-transverter-builders@yahoogroups.com
<mailto:w1ghz-transverter-builders%40yahoogroups.com>
> <mailto:w1ghz-transverter-builders%40yahoogroups.com> , Zack Widup
> <w9sz.zack@> wrote:
> >
> > It might be the board that Down East Microwave uses in its 10 GHz
> > transverter. The design is very similar to the 5760 design Paul put
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> > > reasonable cost.
> > > Dick G4BBH
> > >
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> > >
> > >
>

353. Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 18:37:58 UTC
From: adam
Topic: 346 Message: 353

Well, then you can go with the microstrip line filters...

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, "Danny Pease" <dpease@...> wrote:
>
> I would like to use 1296.
>
>
>
> Danny
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>
> From: w1ghz-transverter-builders@yahoogroups.com
> [mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of adam
> Sent: Saturday, December 08, 2012 12:11 PM
> To: w1ghz-transverter-builders@yahoogroups.com
> Subject: [w1ghz-transverter-builders] Re: 10GHz transverter?
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> Danny, what IF do you plan to use with your design?
> Strip line filters on 10ghz my have wide BW and high I.L. and reproduction
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> Adam, 9A4QV
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> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com> , "Danny Pease"
> <dpease@> wrote:
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> > I am still in the brain storming mode for a (cheap) home brew 10 GHz
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> > on a simple design would be greatly appreciated.
> >
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> >
> > Danny NG9R

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> > From: w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>
> > [mailto:w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>] On Behalf Of adam
> > Sent: Saturday, December 08, 2012 11:23 AM
> > To: w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>
> > Subject: [w1ghz-transverter-builders] Re: 10GHz transverter?
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> > Hello Zack,
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> > Thanks,
> > Adam, 9A4QV
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> > P.S. I did manage to make something cheap rover style for 6cm also...
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> > --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>
> > <mailto:w1ghz-transverter-builders%40yahoogroups.com> , Zack Widup
> > <w9sz.zack@> wrote:
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> > > > Dick G4BBH
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354. Re: [w1ghz-transverter-builders] Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 23:46:09 UTC
From: Zack Widup
Topic: 346 Message: 354

Hi Adam,

I think when I wanted to build it I sent an e-mail to him and asked
him what material he used for the circuit board. It's an oversight
that it isn't mentioned in the article.

I built it in the late 90's and it has been a great performer for me for years.

73, Zack W9SZ

On 12/8/12, adam <adam9a4qv@...> wrote:
> Hello Zack,
>
> Where did you get this info regarding the PCB material and thickness,
> speaking about Paul 5760 pipe cap transverter?
>
> Thanks,
> Adam, 9A4QV
>
> P.S. I did manage to make something cheap rover style for 6cm also...
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> --- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup
> <w9sz.zack@...> wrote:
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>> > Dick G4BBH
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355. Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-09 00:16:46 UTC
From: adam
Topic: 346 Message: 355

Thanks Zack,

Yep, in all published articles in a magazines, books, web and no info regarding the PCB. Well, using the reverse engineering this can be found out but if I remember well when I tried that some time ago I get some strange results using the pcb tracks in the splitter and mixers knowing the required impedance and guessing that Rogers/teflon was used as a standard that period, 5870 or something close Er.
I have to check this again...

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
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> Hi Adam,
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> I think when I wanted to build it I sent an e-mail to him and asked
> him what material he used for the circuit board. It's an oversight
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> I built it in the late 90's and it has been a great performer for me for years.
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> 73, Zack W9SZ
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> On 12/8/12, adam <adam9a4qv@...> wrote:
> > Hello Zack,
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> > Where did you get this info regarding the PCB material and thickness,
> > speaking about Paul 5760 pipe cap transverter?
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> > Thanks,
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> > P.S. I did manage to make something cheap rover style for 6cm also...
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356. Re: [w1ghz-transverter-builders] Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-09 01:55:34 UTC
From: Charles Seevers
Topic: 346 Message: 356

On 12/8/2012 4:16 PM, adam wrote:
>
> Thanks Zack,
>
> Yep, in all published articles in a magazines, books, web and no info
> regarding the PCB.
> Well, using the reverse engineering this can be found out but if I
> remember well when I tried that some time ago I get some strange
> results using the pcb tracks in the splitter and mixers knowing the
> required impedance and guessing that Rogers/teflon was used as a
> standard that period, 5870 or something close Er.
> I have to check this again...
>
> Adam
>
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> > Hi Adam,
> >
> > I think when I wanted to build it I sent an e-mail to him and asked
> > him what material he used for the circuit board. It's an oversight
> > that it isn't mentioned in the article.
> >
> > I built it in the late 90's and it has been a great performer for me
> for years.
> >
> > 73, Zack W9SZ
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> >
> > On 12/8/12, adam <adam9a4qv@...> wrote:
> > > Hello Zack,
> > >
> > > Where did you get this info regarding the PCB material and thickness,
> > > speaking about Paul 5760 pipe cap transverter?
> > >
> > > Thanks,
> > > Adam, 9A4QV
> > >
> > > P.S. I did manage to make something cheap rover style for 6cm also...
> > >
> > > --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup
> > > <w9sz.zack@> wrote:

> > >>
> > >> It might be the board that Down East Microwave uses in its 10 GHz
> > >> transverter. The design is very similar to the 5760 design Paul put
> > >> together which appeared in November 1997 QEX. I believe the file
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> > >> On 12/8/12, ferrymanr <g4bbh@> wrote:
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> > >> > Dick G4BBH
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>
You can buy the PCB only for their transverter from Downeastmicrowave
for 75.00. Uses pipe cap filters, etc. 73, W6QWN

357. Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-10 10:06:50 UTC
From: adam
Topic: 346 Message: 357

Zack,

For the guy's planning to build this transverter (5760 MHz)
I dig out the old N1BWT article, and dig out the PCB layout that inserted in my PCB SW and it comes out that the 50ohms are 2.2mm instead of 1.9mm for RT5880.

Well, the difference is "only" 43 ohms vs. required 50 ohms. If I insert the RT5870 the difference is even bigger.

All speaking for the PCB 31mils.

--- In w1ghz-transverter-builders@yahoogroups.com, Charles Seevers <w6qwn@...> wrote:
>
> On 12/8/2012 4:16 PM, adam wrote:
> >
> > Thanks Zack,
> >
> > Yep, in all published articles in a magazines, books, web and no info
> > regarding the PCB.
> > Well, using the reverse engineering this can be found out but if I
> > remember well when I tried that some time ago I get some strange
> > results using the pcb tracks in the splitter and mixers knowing the
> > required impedance and guessing that Rogers/teflon was used as a
> > standard that period, 5870 or something close Er.
> > I have to check this again...
> >
> > Adam
> >
> > --- In w1ghz-transverter-builders@yahoogroups.com
> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup
> > <w9sz.zack@> wrote:
> > >
> > > Hi Adam,
> > >
> > > I think when I wanted to build it I sent an e-mail to him and asked
> > > him what material he used for the circuit board. It's an oversight
> > > that it isn't mentioned in the article.
> > >
> > > I built it in the late 90's and it has been a great performer for me
> > for years.
> > >
> > > 73, Zack W9SZ
> > >
> > >
> > > On 12/8/12, adam <adam9a4qv@> wrote:
> > > > Hello Zack,

> > > >
> > > > Where did you get this info regarding the PCB material and thickness,
> > > > speaking about Paul 5760 pipe cap transverter?
> > > >
> > > > Thanks,
> > > > Adam, 9A4QV
> > > >
> > > > P.S. I did manage to make something cheap rover style for 6cm also...
> > > >
> > > > --- In w1ghz-transverter-builders@yahoogroups.com
> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup
> > > > <w9sz.zack@> wrote:
> > > >>
> > > >> It might be the board that Down East Microwave uses in its 10 GHz
> > > >> transverter. The design is very similar to the 5760 design Paul put
> > > >> together which appeared in November 1997 QEX. I believe the file
> > is on
> > > >> Paul's website. This 5760 transverter is the design DEMI sells for
> > > >> that band.
> > > >>
> > > >> It wouldn't be difficult to come up with a similar design for 10 GHz.
> > > >> Paul used 31 mil Duroid 5880 for 5760 GHz but I'd recommend 15 mil
> > > >> Duroid for 10 GHz. The only critical dimensions would be the
> > > >> transmission line widths and the ratrace mixer dimensions. Other than
> > > >> that, it's just a matter of routing the transmission lines to the
> > pipe
> > > >> caps on the board.
> > > >>
> > > >> 73, Zack W9SZ
> > > >>
> > > >>
> > > >> On 12/8/12, ferrymanr <g4bbh@> wrote:
> > > >> > Paul did do some work on a 10GHz transverter some years back.
> > It was a
> > > >> > single board multiplier chain, mixer and rf stages with lots of
> > 1/2"
> > > >> > pipe
> > > >> > caps and just needed a stable oscillator source. Does anyone
> > know if
> > > >> > he
> > > >> > ever made a board available? I want to try getting onto
> > 10GHz/3cm at a
> > > >> > reasonable cost.
> > > >> > Dick G4BBH
> > > >> >
> > > >> >
> > > >> >
> > > >>
> > > >
> > > >

> > > >
> > >
> >
> >
> You can buy the PCB only for their transverter from Downeastmicrowave
> for 75.00. Uses pipe cap filters, etc. 73, W6QWN
>

358. Re: [w1ghz-transverter-builders] Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-10 15:15:51 UTC
From: Zack Widup
Topic: 346 Message: 358

I don't think it's a big deal. Even with teflon board (er=2.55) I
still get a width of 2.2 mils for 0.031 inch thick board at 5760 MHz
according to the Rogers program MWI. For 50 ohm line with 0.031 mil
Duroid 5880 at 5760 MHz, the MWI program gives a width of 2.43 mm.

The unit I built works great using the exact board template Paul shows
in the article and I have made hundreds of QSO's with it including a
couple in the 500-mile range with 2 watts.

If it works, I'm not going to fret.

73, Zack W9SZ

On 12/10/12, adam <adam9a4qv@...> wrote:
> Zack,
>
> For the guy's planning to build this transverter (5760 MHz)
> I dig out the old N1BWT article, and dig out the PCB layout that inserted in
> my PCB SW and it comes out that the 50ohms are 2.2mm instead of 1.9mm for
> RT5880.
>
> Well, the difference is "only" 43 ohms vs. required 50 ohms. If I insert the
> RT5870 the difference is even bigger.
>
> All speaking for the PCB 31mils.
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, Charles Seevers
> <w6qwn@...> wrote:
>>
>> On 12/8/2012 4:16 PM, adam wrote:
>> >
>> > Thanks Zack,
>> >
>> > Yep, in all published articles in a magazines, books, web and no info
>> > regarding the PCB.
>> > Well, using the reverse engineering this can be found out but if I
>> > remember well when I tried that some time ago I get some strange
>> > results using the pcb tracks in the splitter and mixers knowing the
>> > required impedance and guessing that Rogers/teflon was used as a
>> > standard that period, 5870 or something close Er.
>> > I have to check this again...
>> >
>> > Adam
>> >
>> > --- In w1ghz-transverter-builders@yahoogroups.com

>> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup
>> > <w9sz.zack@> wrote:
>> > >
>> > > Hi Adam,
>> > >
>> > > I think when I wanted to build it I sent an e-mail to him and asked
>> > > him what material he used for the circuit board. It's an oversight
>> > > that it isn't mentioned in the article.
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>> > > I built it in the late 90's and it has been a great performer for me
>> > for years.
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>> > > 73, Zack W9SZ
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>> > >
>> > > On 12/8/12, adam <adam9a4qv@> wrote:
>> > > > Hello Zack,
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>> > > > Where did you get this info regarding the PCB material and
>> > > > thickness,
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>> > > > Thanks,
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>> > > > P.S. I did manage to make something cheap rover style for 6cm
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>> > > > --- In w1ghz-transverter-builders@yahoogroups.com
>> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup
>> > > > <w9sz.zack@> wrote:
>> > > >>
>> > > >> It might be the board that Down East Microwave uses in its 10 GHz
>> > > >> transverter. The design is very similar to the 5760 design Paul
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>> > > >> together which appeared in November 1997 QEX. I believe the file
>> > is on
>> > > >> Paul's website. This 5760 transverter is the design DEMI sells for
>> > > >> that band.
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>> > > >> It wouldn't be difficult to come up with a similar design for 10
>> > > >> GHz.
>> > > >> Paul used 31 mil Duroid 5880 for 5760 GHz but I'd recommend 15 mil
>> > > >> Duroid for 10 GHz. The only critical dimensions would be the
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>> > > >> that, it's just a matter of routing the transmission lines to the
>> > pipe
>> > > >> caps on the board.
>> > > >>

>> > > >> 73, Zack W9SZ
>> > > >>
>> > > >>
>> > > >> On 12/8/12, ferrymanr <g4bbh@> wrote:
>> > > >> > Paul did do some work on a 10GHz transverter some years back.
>> > It was a
>> > > >> > single board multiplier chain, mixer and rf stages with lots of
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>> >
>> You can buy the PCB only for their transverter from Downeastmicrowave
>> for 75.00. Uses pipe cap filters, etc. 73, W6QWN
>>
>
>
>

359. Re: 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-10 19:19:12 UTC
From: adam
Topic: 346 Message: 359

Zack, UR right.
I did recheck one of my sw and found some differences, I make a mistake.

Thanks, 73
Adam

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> I don't think it's a big deal. Even with teflon board (er=2.55) I
> still get a width of 2.2 mils for 0.031 inch thick board at 5760 MHz
> according to the Rogers program MWI. For 50 ohm line with 0.031 mil
> Duroid 5880 at 5760 MHz, the MWI program gives a width of 2.43 mm.
>
> The unit I built works great using the exact board template Paul shows
> in the article and I have made hundreds of QSO's with it including a
> couple in the 500-mile range with 2 watts.
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> 73, Zack W9SZ
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> On 12/10/12, adam <adam9a4qv@...> wrote:
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> > For the guy's planning to build this transverter (5760 MHz)
> > I dig out the old N1BWT article, and dig out the PCB layout that inserted in
> > my PCB SW and it comes out that the 50ohms are 2.2mm instead of 1.9mm for
> > RT5880.
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> > Well, the difference is "only" 43 ohms vs. required 50 ohms. If I insert the
> > RT5870 the difference is even bigger.
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> > <w6qwn@> wrote:
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> >> On 12/8/2012 4:16 PM, adam wrote:
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> >> > Thanks Zack,
> >> >
> >> > Yep, in all published articles in a magazines, books, web and no info
> >> > regarding the PCB.

> >> > Well, using the reverse engineering this can be found out but if I
> >> > remember well when I tried that some time ago I get some strange
> >> > results using the pcb tracks in the splitter and mixers knowing the
> >> > required impedance and guessing that Rogers/teflon was used as a
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> >> > I have to check this again...
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> >> > Adam
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> >> > --- In w1ghz-transverter-builders@yahoogroups.com
> >> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup
> >> > <w9sz.zack@> wrote:
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> >> > > Hi Adam,
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> >> > > I think when I wanted to build it I sent an e-mail to him and asked
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> >> > > that it isn't mentioned in the article.
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> >> > > I built it in the late 90's and it has been a great performer for me
> >> > for years.
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> >> > > On 12/8/12, adam <adam9a4qv@> wrote:
> >> > > > Hello Zack,
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> >> > > > thickness,
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> >> > > > P.S. I did manage to make something cheap rover style for 6cm
> >> > > > also...
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> >> > > > --- In w1ghz-transverter-builders@yahoogroups.com
> >> > <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup
> >> > > > <w9sz.zack@> wrote:
> >> > > >>
> >> > > >> It might be the board that Down East Microwave uses in its 10 GHz
> >> > > >> transverter. The design is very similar to the 5760 design Paul
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> >> > > >> together which appeared in November 1997 QEX. I believe the file
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> >> > > >> Paul's website. This 5760 transverter is the design DEMI sells for
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> >> > > >> It wouldn't be difficult to come up with a similar design for 10
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> >> > > >> 73, Zack W9SZ
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> >> > > >>
> >> > > >> On 12/8/12, ferrymanr <g4bbh@> wrote:
> >> > > >> > Paul did do some work on a 10GHz transverter some years back.
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> >> You can buy the PCB only for their transverter from Downeastmicrowave
> >> for 75.00. Uses pipe cap filters, etc. 73, W6QWN
> >>
> >
> >
> >
> >

360. Re: [w1ghz-transverter-builders] 10GHz transverter?

Yahoo group: w1ghz-transverter-builders
Date: 2012-12-08 14:31:41 UTC
From: Scott
Topic: 346 Message: 360
Attachments: 1 described; binary payloads are missing from this source WARC

Actually, Paul designed the 10 GHz transverter that Down East Microwave sells here in the USA. See their online catalog at:
http://www.downeastmicrowave.com/

Their 10 GHz transverter (kit form or pre-built) comes with the A32 synthesized L.O. board. Even if you buy the kit version transverter, the A32 board is supplied already built. The only things that need building are the transverter PC board and the transverter control board. It is probably not a beginners kit and if you don't have access to a spectrum analyzer and power meter for 10 GHz, it would be difficult to align all those pipe caps.

Since you are in G land, you may want to join up with the UK Microwave Group.
http://www.microwavers.org/

There are a LOT of UK microwavers! They would be able to steer you in the right direction...

Scott
N0EDV

On 12-8-2012 13:48, Dean Denter wrote:
>
> Don't know of anything from Paul -- but Graham VK3XDK has a 10G board
> available, mine is about 1/2 built (work keeps getting in the way).
>
> regards,
> Dean -- VA3CDD
>
> On Sat, Dec 8, 2012 at 8:02 AM, ferrymanr <g4bbh@...
> <mailto:g4bbh@...>> wrote:
>
> Paul did do some work on a 10GHz transverter some years back. It
> was a single board multiplier chain, mixer and rf stages with lots
> of 1/2" pipe caps and just needed a stable oscillator source. Does
> anyone know if he ever made a board available? I want to try
> getting onto 10GHz/3cm at a reasonable cost.
> Dick G4BBH
>
>
>

--

361. W1GHZ relay kits

Yahoo group: w1ghz-transverter-builders
Date: 2013-04-07 02:25:08 UTC
From: ke4qdl
Topic: 361 Message: 361

Hello,

I've got three relay kits (board and parts only, no connectors) I purchased back in the last group buy that Paul designed to go with his transverter boards. I'd like to get $10 ea. plus shipping. If interested, please drop me a line at w4ti at arrl net.

Thanks,
Chase

362. Re: [w1ghz-transverter-builders] W1GHZ relay kits

Yahoo group: w1ghz-transverter-builders
Date: 2013-04-07 03:16:32 UTC
From: Chase Turner
Topic: 361 Message: 362

Hello,

The relays kits are spoken for. Thanks for the interest!

Best,
Chase

On Sat, Apr 6, 2013 at 10:25 PM, ke4qdl <ke4qdl@...> wrote:

> **
>
>
> Hello,
>
> I've got three relay kits (board and parts only, no connectors) I
> purchased back in the last group buy that Paul designed to go with his
> transverter boards. I'd like to get $10 ea. plus shipping. If interested,
> please drop me a line at w4ti at arrl net.
>
> Thanks,
> Chase
>
>
>

--
Chase Turner
W4TI
http://w4ti.com

363. FS kits

Yahoo group: w1ghz-transverter-builders
Date: 2013-04-12 01:57:50 UTC
From: dualraoul
Topic: 363 Message: 363

Plans changed, shack cleaning and have for sale a few transverter kits.
These were from the last group buys and don't include the filter caps
or connectors.

1296RSU Parts kit,1296RSU board
2304 Parts kit,2304 board
3456 Parts kit,3456 board
720LO Parts kit,720LO board
Relay Parts kit,relay board, Qty:3
$160 plus shipping for the lot.

I also have a W1GHZ 222 transverter that's almost complete, only need
to put it in the included machined enclosure $160 plus shipping.

Thanks
Ron
K0IDT

364. Re: FS kits

Yahoo group: w1ghz-transverter-builders
Date: 2013-04-12 20:22:43 UTC
From: dualraoul
Topic: 363 Message: 364

The microwave kits are gone, still have the W1GHZ 222Mhz
transverter. Also have a W7PUA DSP10 kit with extras, $350
plus shipping.

Thanks,
Ron
K0IDT

--- In w1ghz-transverter-builders@yahoogroups.com, "dualraoul" <ronkolarik801@...> wrote:
>
> Plans changed, shack cleaning and have for sale a few transverter kits.
> These were from the last group buys and don't include the filter caps
> or connectors.
>
> 1296RSU Parts kit,1296RSU board
> 2304 Parts kit,2304 board
> 3456 Parts kit,3456 board
> 720LO Parts kit,720LO board
> Relay Parts kit,relay board, Qty:3
> $160 plus shipping for the lot.
>
> I also have a W1GHZ 222 transverter that's almost complete, only need
> to put it in the included machined enclosure $160 plus shipping.
>
> Thanks
> Ron
> K0IDT
>

365. Re: FS kits

Yahoo group: w1ghz-transverter-builders
Date: 2013-04-13 03:33:44 UTC
From: dualraoul
Topic: 363 Message: 365

All gone except the W7PUA DSP10 kit with extras, $350
plus shipping. This would make a killer 2M I.F. for microwaves
in case you aren't familiar with it.

Thanks
Ron
K0IDT

--- In w1ghz-transverter-builders@yahoogroups.com, "dualraoul" <ronkolarik801@...> wrote:
>
> The microwave kits are gone, still have the W1GHZ 222Mhz
> transverter. Also have a W7PUA DSP10 kit with extras, $350
> plus shipping.
>
> Thanks,
> Ron
> K0IDT

366. 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-07 06:46:01 UTC
From: adam
Topic: 366 Message: 366

https://www.youtube.com/watch?v=Ceiweu0O484&list=UUavUTK2MKVM5uDmh-BBBHqQ&index=1

https://www.youtube.com/watch?v=Gmho3UEM67c&list=UUavUTK2MKVM5uDmh-BBBHqQ&index=2

9A4QV

367. Re: 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 13:11:18 UTC
From: David Palm
Topic: 366 Message: 367

Hey Adam,

This is fantastic to see the W1GHZ 'verters in action! I'm seriously stalled on my own building projects--trying to get my oldest child graduated from high school and off to college. But I sincerely hope to get back to finishing at least my 900 and 1296 MHz 'verters (which are about 85 and 60% done respectively) and maybe get to rove with them this fall or early next year.

Anybody else have some real world experience with their W1GHZ transverters they can share with us?

73,

David W9HQ

368. Re: [w1ghz-transverter-builders] Re: 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 15:15:46 UTC
From: Zack Widup
Topic: 366 Message: 368

I built the 903 transverter with my own LO scheme. I used a 94.75 MHz crystal in a phase-locked circuit designed by KD6OZH (locked to a 10 MHz OCXO in the field), then multiplied by the W1GHZ LO board to 758 MHz. This gives me 144 MHz = 902 MHz and 145 MHz = 903 MHz. Both frequencies are in use for weak-signal work in this area.

I built the WD5AGO/W5LUA (CSVHF 2007) low-noise preamp and used a module I got from somewhere (M67773) which gives 10 watts out for 1 mW input. I also used a couple 902 MHz helical filters between the transverter T/R connections and the preamp/power amp. I've made a LOT of QSO's with this and an 18 element looper as antenna. Works better than my old KK7B no-tune 902 MHz transverter.

73, Zack W9SZ

On Fri, May 10, 2013 at 8:11 AM, David Palm <thepalmhq@...> wrote:

> **
>
>
> Hey Adam,
>
> This is fantastic to see the W1GHZ 'verters in action! I'm seriously
> stalled on my own building projects--trying to get my oldest child
> graduated from high school and off to college. But I sincerely hope to get
> back to finishing at least my 900 and 1296 MHz 'verters (which are about 85
> and 60% done respectively) and maybe get to rove with them this fall or
> early next year.
>
> Anybody else have some real world experience with their W1GHZ transverters
> they can share with us?
>
> 73,
>
> David W9HQ
>
>
>

369. Re: [w1ghz-transverter-builders] Re: 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 16:44:12 UTC
From: Scott
Topic: 366 Message: 369
Attachments: 1 described; binary payloads are missing from this source WARC

I only have his 222 transverter on the air. My 1296 is built, but only
lower power right now...trying to find where I put my M67715 PA module. :(

N0EDV

On 5-10-2013 13:11, David Palm wrote:
>
> Hey Adam,
>
> This is fantastic to see the W1GHZ 'verters in action! I'm seriously
> stalled on my own building projects--trying to get my oldest child
> graduated from high school and off to college. But I sincerely hope
> to get back to finishing at least my 900 and 1296 MHz 'verters (which
> are about 85 and 60% done respectively) and maybe get to rove with
> them this fall or early next year.
>
> Anybody else have some real world experience with their W1GHZ
> transverters they can share with us?
>
> 73,
>
> David W9HQ
>
>

--

370. RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 18:18:03 UTC
From: James French
Topic: 370 Message: 370

Going through some of the older messages today with the talk about 13cm rovers and found that Zack had mentioned about the RF2126 as an intermediate amp to get up to the power needed to drive a higher power module.

Would anyone know what the going price for a RF2126 evaluation board is going for? Digikey has it listed but they don't list the price.

I looked up the RA13H8891MB module on rf parts and its showing a list price of 33 dollars which would be nice if I could boost the output from the 900 transverters.

From what I read of the online literature, the RF2126 would be good up to 2.4GHz also.

I ask this since I am not that good at soldering that small a part to boards plus I have no means or the skill to etch a pc board.

James W8ISS

371. Re: [w1ghz-transverter-builders] RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 19:06:49 UTC
From: Joshua M. Arritt
Topic: 370 Message: 371

I've had luck pulling amp modules from "bag phones" and making them work with the 'GHZ 902 xvrtr. Just take some tin snips and cut the "pallet" out with the module. Can eeek out as much as a few watts with these. Will need lower drive than that for the Mitsu "cholocate bar", so some padding interstage would be something you'll probably play with in that vein.

73,
- Josh / KF4YLM

On 5/10/2013 2:18 PM, James French wrote:
> Going through some of the older messages today with the talk about 13cm
> rovers and found that Zack had mentioned about the RF2126 as an
> intermediate amp to get up to the power needed to drive a higher power
> module.
>
> Would anyone know what the going price for a RF2126 evaluation board is
> going for? Digikey has it listed but they don't list the price.
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> I looked up the RA13H8891MB module on rf parts and its showing a list
> price of 33 dollars which would be nice if I could boost the output from
> the 900 transverters.
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> >From what I read of the online literature, the RF2126 would be good up
> to 2.4GHz also.
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> I ask this since I am not that good at soldering that small a part to
> boards plus I have no means or the skill to etch a pc board.
>
> James W8ISS
>
>
>
> ------------------------------------
>
> Yahoo! Groups Links
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>
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>

372. Re: [w1ghz-transverter-builders] RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 19:09:58 UTC
From: Zack Widup
Topic: 370 Message: 372

Someone in Greece is selling a complete kit with parts on eBay for $22.90.
That shoulod give you an idea!

http://www.ebay.com/itm/PCB-for-the-1W-RF2126-RF-Amplifier-chip-2-4-GHZ-2400-MHZ-COMPLETE-KIT-W-PARTS-/150994979757?pt=US_Ham_Radio_Amplifiers&hash=item2328008bad

I also see multiple sellers of just the RF2126 chip. I remember they are
not that difficult to solder; there is a fair amount of room between the
pins. But I do a lot of surface-mount soldering and things that are easy
for me might not be for others.

I did use this chip as a driver for a larger amp on 2304 once.

73, Zack W9SZ

On Fri, May 10, 2013 at 1:18 PM, James French <w8iss1@...> wrote:

> **
>
>
> Going through some of the older messages today with the talk about 13cm
> rovers and found that Zack had mentioned about the RF2126 as an
> intermediate amp to get up to the power needed to drive a higher power
> module.
>
> Would anyone know what the going price for a RF2126 evaluation board is
> going for? Digikey has it listed but they don't list the price.
>
> I looked up the RA13H8891MB module on rf parts and its showing a list
> price of 33 dollars which would be nice if I could boost the output from
> the 900 transverters.
>
> From what I read of the online literature, the RF2126 would be good up
> to 2.4GHz also.
>
> I ask this since I am not that good at soldering that small a part to
> boards plus I have no means or the skill to etch a pc board.
>
> James W8ISS
>
>
>

373. Re: RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 19:24:38 UTC
From: adam
Topic: 370 Message: 373

Hi guys,

I see that you are looking for some high power on 903MHz.
I do have several amplifiers for that band, professional design used in the GSM cell network 950 Mhz in EU for the base station.

The amps are pushing out 100w (in 24/7) regime with 0dBm drive.
24V DC power supply but they can run also on 13,6V with reduced power and efficiency.

The PCB with the heat spreader can be easily unscrewed from the heatsink and shipped in the mail with fairly rates.

If you are interested please propose some price.
I can send some photos on requests.

I did modify som of the models, depending on the last amplifier stage also for 23cm band, but this is rather complicated and impossible with all final semiconductors, so i prefer to sell it in the original state.

Adam, 9A4QV

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> Someone in Greece is selling a complete kit with parts on eBay for $22.90.
> That shoulod give you an idea!
>
> http://www.ebay.com/itm/PCB-for-the-1W-RF2126-RF-Amplifier-chip-2-4-GHZ-2400-MHZ-COMPLETE-KIT-W-PARTS-/150994979757?pt=US_Ham_Radio_Amplifiers&hash=item2328008bad
>
> I also see multiple sellers of just the RF2126 chip. I remember they are
> not that difficult to solder; there is a fair amount of room between the
> pins. But I do a lot of surface-mount soldering and things that are easy
> for me might not be for others.
>
> I did use this chip as a driver for a larger amp on 2304 once.
>
> 73, Zack W9SZ
>
>
> On Fri, May 10, 2013 at 1:18 PM, James French <w8iss1@...> wrote:
>
> > **
> > >
> > >
> > > Going through some of the older messages today with the talk about 13cm
> > > rovers and found that Zack had mentioned about the RF2126 as an
> > > intermediate amp to get up to the power needed to drive a higher power

> > module.
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> > going for? Digikey has it listed but they don't list the price.
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> > price of 33 dollars which would be nice if I could boost the output from
> > the 900 transverters.
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> > From what I read of the online literature, the RF2126 would be good up
> > to 2.4GHz also.
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> > I ask this since I am not that good at soldering that small a part to
> > boards plus I have no means or the skill to etch a pc board.
> >
> > James W8ISS
> >
> >
> >
>

374. Re: RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 23:04:19 UTC
From: K5TRA
Topic: 370 Message: 374

Zack,
I have used the RFMD SPB2026 chip for a predriver on 1296. I'm sure it could be matched for 902/903 operation. Applications boards are available on eBay (item 160445927901), and the IC's are also available from another seller. They were originally intended for 1.8 GHz PCS applications. I rematched the applications board for use in my 1296 transverter. I'll post the details of the output match on that app board in the files section.
Tom / K5TRA

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup <w9sz.zack@...> wrote:
>
> Someone in Greece is selling a complete kit with parts on eBay for $22.90.
> That shoulod give you an idea!
>
> http://www.ebay.com/itm/PCB-for-the-1W-RF2126-RF-Amplifier-chip-2-4-GHZ-2400-MHZ-COMPLETE-KIT-W-PARTS-/150994979757?pt=US_Ham_Radio_Amplifiers&hash=item2328008bad
>
> I also see multiple sellers of just the RF2126 chip. I remember they are
> not that difficult to solder; there is a fair amount of room between the
> pins. But I do a lot of surface-mount soldering and things that are easy
> for me might not be for others.
>
> I did use this chip as a driver for a larger amp on 2304 once.
>
> 73, Zack W9SZ
>
>
> On Fri, May 10, 2013 at 1:18 PM, James French <w8iss1@...> wrote:
>
> > **
> > >
> > >
> > > Going through some of the older messages today with the talk about 13cm
> > > rovers and found that Zack had mentioned about the RF2126 as an
> > > intermediate amp to get up to the power needed to drive a higher power
> > > module.
> > >
> > > Would anyone know what the going price for a RF2126 evaluation board is
> > > going for? Digikey has it listed but they don't list the price.
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> > > price of 33 dollars which would be nice if I could boost the output from
> > > the 900 transverters.
> > >
> > > From what I read of the online literature, the RF2126 would be good up
> > > to 2.4GHz also.

> >
> > I ask this since I am not that good at soldering that small a part to
> > boards plus I have no means or the skill to etch a pc board.
> >
> > James W8ISS
> >
> >
> >
>

375. New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-10 23:13:44 UTC
From: w1ghz-transverter-builders@yahoogroups.com
Topic: 30 Message: 375

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the w1ghz-transverter-builders
group.

File : /1296 MHz PreDriver Z-Matching.pdf
Uploaded by : k5tra <k5tra@...>
Description : Rematch of SPB2026 (1.8GHz) apps board for 1296MHz. This is a 33dBm IC.

You can access this file at the URL:
http://groups.yahoo.com/group/w1ghz-transverter-builders/files/1296%20MHz%20PreDriver%20Z-Matching.pdf

To learn more about file sharing for your group, please visit:
http://help.yahoo.com/l/us/yahoo/groups/original/members/web/index.html
Regards,

k5tra <k5tra@...>

376. Re: 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-11 11:14:07 UTC
From: donaldhawbaker
Topic: 366 Message: 376

On the 222 model, did you have any problem with self oscillation? I had to solder a strap between the resonator cans to tame mine. Thanks. 73s

--- In w1ghz-transverter-builders@yahoogroups.com, Scott <acepilot@...> wrote:
>
> I only have his 222 transverter on the air. My 1296 is built, but only
> lower power right now...trying to find where I put my M67715 PA module. :(
>
>
> N0EDV
>
>
> On 5-10-2013 13:11, David Palm wrote:
> >
> > Hey Adam,
> >
> > This is fantastic to see the W1GHZ 'verters in action! I'm seriously
> > stalled on my own building projects--trying to get my oldest child
> > graduated from high school and off to college. But I sincerely hope
> > to get back to finishing at least my 900 and 1296 MHz 'verters (which
> > are about 85 and 60% done respectively) and maybe get to rove with
> > them this fall or early next year.
> >
> > Anybody else have some real world experience with their W1GHZ
> > transverters they can share with us?
> >
> > 73,
> >
> > David W9HQ
> >
> >
>
> --
>

377. Re: [w1ghz-transverter-builders] Re: 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-11 11:39:26 UTC
From: Scott
Topic: 366 Message: 377
Attachments: 1 described; binary payloads are missing from this source WARC

No, no issues with any oscillations on my unit. It worked right from
the get-go.

On 5-11-2013 11:14, donaldhawbaker wrote:
>
> On the 222 model, did you have any problem with self oscillation? I
> had to solder a strap between the resonator cans to tame mine. Thanks. 73s
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Scott
> <acepilot@...> wrote:
> >
> > I only have his 222 transverter on the air. My 1296 is built, but only
> > lower power right now...trying to find where I put my M67715 PA
> module. :(
> >
> >
> > N0EDV
>

--

378. Re: 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-12 06:25:39 UTC
From: Courtney Duncan
Topic: 366 Message: 378

The rather lengthy story, with pictures, of how I got from a DSP-10 to 1296 starting with a W1GHZ 1296RSU board is at

http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU

Years and hundreds of dollars later.....

73, n5bf

379. From DSP-10 to 1296 by N5BF

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-14 14:11:54 UTC
From: thepalmhq
Topic: 379 Message: 379

[Moderator's note: N5BF's detailed narration of his adventures in getting a W1GHZ 1296RSU board working is well worth reading. It really needed to be in its own thread, so I've copied his initial posting below.]

The rather lengthy story, with pictures, of how I got from a DSP-10 to 1296 starting with a W1GHZ 1296RSU board is at

http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU

Years and hundreds of dollars later.....

73, n5bf

381. Re: [w1ghz-transverter-builders] From DSP-10 to 1296 by N5BF

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-14 14:24:03 UTC
From: Ethan Miller K8GU
Topic: 379 Message: 381

I agree. This is an excellent story. Thanks for sharing it!

I have my 903 and 1296 W1GHZ boards working and buttoned up in enclosures. But, time has been of the essence of late. I've been using them as-is with WA5VJB Yagis to monitor a nearby beacon. But, that's about it. Nothing is integrated, etc. I have a bunch of the (now discontinued) W6PQL LNA kits that I need to build up for the front ends. And, I have the W6PQL RF module kits for the PAs with some nice little heatsink boxes (also now sold out) that I picked up from the Pure Power RF surplus page.

Another nice little IF rig for RX only is a SoftRock Ensemble VHF.

73,

--Ethan, K8GU/3.

On Tue, May 14, 2013 at 10:11 AM, thepalmhq <thepalmhq@...> wrote:

> [Moderator's note: N5BF's detailed narration of his adventures in getting
> a W1GHZ 1296RSU board working is well worth reading. It really needed to
> be in its own thread, so I've copied his initial posting below.]
>
> ---
>
> The rather lengthy story, with pictures, of how I got from a DSP-10 to
> 1296 starting with a W1GHZ 1296RSU board is at
>
>
> http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU
>
> Years and hundreds of dollars later.....
>
> 73, n5bf
>
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>
> ---
>
> Yahoo! Groups Links
>
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>

--
http://www.k8gu.com/

Repair. Re-use. Re-purpose. Recycle.

382. Re: From DSP-10 to 1296 by N5BF

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-14 15:00:04 UTC
From: thepalmhq
Topic: 379 Message: 382

Here's what I consider to be an important summary from N5BF's report:

"I made improvements in the right order: antenna, front end, power out, and by then there was so much new stuff that a new box was needed and new circuits were needed to manage everything."

From what folks are reporting, the W1GHZ boards are pretty deaf when built as-is. Adam's (9A4QV) PIN diode modification is a cheap, easy, and fairly low-risk way to pick up a few dB on receive (see W1GHZ PIN Diode Modification <http://f1.grp.yahoofs.com/v1/kE-SUdOPHRMaUml4qi4I4hC4j4HRC8Zbw491IUe1E_\o8xUMM1rQcpYgXto-uvJcJWgNnSAOVzOlXceMTyNHd1A/W1GHZ%20PIN%20Diode%20Modif\ication.JPG> .) But it looks like a pre-amp is pretty close to a "must have", although Ethan's comments above indicate that his as-is receive performance is better than N5BF's was.

The other trend that's emerging from reports is that better filtering--both LO and on receive--is highly desirable. I started a thread on that topic some time ago called "Filtering: LO, transmit, and receive <http://groups.yahoo.com/group/w1ghz-transverter-builders/message/210> ", so if others have additional ideas on filtering please chime in there.

And then, of course, almost everybody is going to want more than 50 mW of output, so one or more stages of amplification are needed on transmit. There has been a lot of discussion on that in various threads in this group.

"Plan accordingly" seems to be the big take-away from Courtney's report. Thanks again for the detailed write-up.

I'm just behind K8GU in my own build plan. My 902 transverter is more or less done, the 1296 is well along. But I'm stalled out getting my IF rig and sequencer working the way I want and, as Ethan said, time is of the essence right now. Hope springs eternal and perhaps I'll have something on the air for the fall contests, maybe even for the August UHF contest.

73,

David W9HQ

383. Re: [w1ghz-transverter-builders] From DSP-10 to 1296 by N5BF

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-14 17:23:00 UTC
From: Zack Widup
Topic: 379 Message: 383
Attachments: 1 described; binary payloads are missing from this source WARC

Interesting series of events!

I haven't built my 1296 transverter based on the W1GHZ boards yet but I have a 902 MHz system that works very well. I built it to be a high-performance system and it seems to fit the bill.

The major parts to mine are:

The LO I use is a phase-locked low-noise PLL circuit (KD6OZH, Nov/Dec 1999 QEX) with a 94.75 MHz crystal phase-locked to a 10 MHz Isotemp low-noise OCXO. The LO board seems to very easily multiply this to 758 MHz.

I used PIN diodes instead of the 33 ohm resistors used as the T/R power splitter.

I used helical filters between the 902 MHz inputs/outputs and the corresponding preamp and power amp.

I built the WD5AGO/W5LUA now-noise preamp circuit presented at Central States conference in 2007. It's a great performer.

I have an obscure linear power module that gives me 10 watts out for 1 mW in.

For 1296 I am thinking of using a 96 MHz LO which is a direct frequency synthesis scheme similar to what WA1ZMS uses for his 134 and 241 GHz systems. I won't have to worry about whether the circuit goes out of phase-lock because it is not a phase-locked LO. That will result in one less board to try to fit into a box.

Attached is a photo of my 902 MHz transverter (I hope - I forget if the group e-mail allows attachments or not).

73, Zack W9SZ

On Tue, May 14, 2013 at 9:11 AM, thepalmhq <thepalmhq@...> wrote:

> **
>
>
> [Moderator's note: N5BF's detailed narration of his adventures in getting
> a W1GHZ 1296RSU board working is well worth reading. It really needed to be
> in its own thread, so I've copied his initial posting below.]
>
> ---
>
> The rather lengthy story, with pictures, of how I got from a DSP-10 to

> 1296 starting with a W1GHZ 1296RSU board is at
>
>
> http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU
>
> Years and hundreds of dollars later.....
>
> 73, n5bf
>
>
>

384. Re: [w1ghz-transverter-builders] From DSP-10 to 1296 by N5BF

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-14 17:40:24 UTC
From: Zack Widup
Topic: 379 Message: 384

I found out the group's e-mail doesn't allow attachments, so I put a couple photos of my 902 MHz transverter in the group's Photo files in the folder for 902 MHz transverters:

http://groups.yahoo.com/group/w1ghz-transverter-builders/photos/album/1599842955/pic/1125577078/view?picmode=&mode=tn&order=ordinal&start=1&count=20&dir=asc

http://groups.yahoo.com/group/w1ghz-transverter-builders/photos/album/1599842955/pic/1860988689/view?picmode=&mode=tn&order=ordinal&start=1&count=20&dir=asc

73, Zack W9SZ

On Tue, May 14, 2013 at 12:23 PM, Zack Widup <w9sz.zack@...> wrote:

> Interesting series of events!
>
> I haven't built my 1296 transverter based on the W1GHZ boards yet but I
> have a 902 MHz system that works very well. I built it to be a
> high-performance system and it seems to fit the bill.
>
> The major parts to mine are:
>
> The LO I use is a phase-locked low-noise PLL circuit (KD6OZH, Nov/Dec 1999
> QEX) with a 94.75 MHz crystal phase-locked to a 10 MHz Isotemp low-noise
> OCXO. The LO board seems to very easily multiply this to 758 MHz.
>
> I used PIN diodes instead of the 33 ohm resistors used as the T/R power
> splitter.
>
> I used helical filters between the 902 MHz inputs/outputs and the
> corresponding preamp and power amp.
>
> I built the WD5AGO/W5LUA now-noise preamp circuit presented at Central
> States conference in 2007. It's a great performer.
>
> I have an obscure linear power module that gives me 10 watts out for 1 mW
> in.
>
> For 1296 I am thinking of using a 96 MHz LO which is a direct frequency
> synthesis scheme similar to what WA1ZMS uses for his 134 and 241 GHz
> systems. I won't have to worry about whether the circuit goes out of
> phase-lock because it is not a phase-locked LO. That will result in one
> less board to try to fit into a box.
>
> Attached is a photo of my 902 MHz transverter (I hope - I forget if the
> group e-mail allows attachments or not).

>
> 73, Zack W9SZ
>
>
> On Tue, May 14, 2013 at 9:11 AM, thepalmhq <thepalmhq@...> wrote:
>
>> **
>>
>>
>> [Moderator's note: N5BF's detailed narration of his adventures in getting
>> a W1GHZ 1296RSU board working is well worth reading. It really needed to be
>> in its own thread, so I've copied his initial posting below.]
>>
>> ---------------------------------
>>
>> The rather lengthy story, with pictures, of how I got from a DSP-10 to
>> 1296 starting with a W1GHZ 1296RSU board is at
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>> http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU
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>> Years and hundreds of dollars later.....
>>
>> 73, n5bf
>>
>>
>>
>
>

385. RE: [w1ghz-transverter-builders] From DSP-10 to 1296 by N5BF

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-14 20:01:40 UTC
From: Iain
Topic: 379 Message: 385

Many Many thanks for reposting the initial posting. I have just started building my 1296 RSU transverter and have only a few moments ago finished the LO with it showing 1152.0166 on my freq counter. Hurray. I did have to take a lot of care figuring out the parts placement . the LO diag in the parts placement section would have made it much easier. Now that you've shown me the link the transverter build should be much easier. Thanks.

However I did get a little sidetracked with reading the article to discover what the DSP-10 is/ was.....shame it seems to have been discontinued.

Anyway , many thanks for reposting the link.

73's from a happier W1ghz transverter builder

Iain G4DPF

From: w1ghz-transverter-builders@yahoogroups.com
[mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of thepalmhq
Sent: 14 May 2013 15:12
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] From DSP-10 to 1296 by N5BF

[Moderator's note: N5BF's detailed narration of his adventures in getting a W1GHZ 1296RSU board working is well worth reading. It really needed to be in its own thread, so I've copied his initial posting below.]

The rather lengthy story, with pictures, of how I got from a DSP-10 to 1296 starting with a W1GHZ 1296RSU board is at

http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU

Years and hundreds of dollars later.....

73, n5bf

---

size=1 width="100%" noshade color="#aca899" align=center>

No virus found in this message.
Checked by AVG - www.avg.com
Version: 2013.0.3336 / Virus Database: 3162/6322 - Release Date: 05/13/13

386. Re: 13cm Rover in action videos

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-14 20:49:50 UTC
From: kj4exc
Topic: 366 Message: 386

Great documentation, I have had a blast with all of mine. Makes me wish i had recorded my foray. Home brew is great, you have gone with good testing procedures, I have taken a few of your ideas and comparing them to mine. Great work.
KJ4EXC

--- In w1ghz-transverter-builders@yahoogroups.com, Courtney Duncan <courtney.duncan.n5bf@...> wrote:
>
> The rather lengthy story, with pictures, of how I got from a DSP-10 to 1296 starting with a W1GHZ 1296RSU board is at
>
> http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFour/PhaseFour.html#1296RSU
>
> Years and hundreds of dollars later.....
>
> 73, n5bf
>

387. Re: RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-15 21:23:07 UTC
From: thepalmhq
Topic: 370 Message: 387

This is a great write-up, Tom (see the linked file here
<http://f1.grp.yahoofs.com/v1/ePyTUQC6ceIExqzRV5A_driome2H2C_MD_JUMNmqNe\
8SzFNEJuMHe_eVwuIOQ7GLvGgwaGQ1z2KwcIwRYzS-mQ/1296%20MHz%20PreDriver%20Z-\
Matching.pdf> .)

I have two questions.....1) where did you get that great enclosure and
2) have you done a similar analysis for 900 MHz?

Thanks and 73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, "K5TRA" wrote:
>
>
>
> Zack,
> I have used the RFMD SPB2026 chip for a predriver on 1296. I'm sure it
could be matched for 902/903 operation. Applications boards are
available on eBay (item 160445927901), and the IC's are also available
from another seller. They were originally intended for 1.8 GHz PCS
applications. I rematched the applications board for use in my 1296
transverter. I'll post the details of the output match on that app board
in the files section.
> Tom / K5TRA

388. RE: [w1ghz-transverter-builders] Re: RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-16 06:58:13 UTC
From: K5TRA
Topic: 370 Message: 388

Hi David,

Thanks. The enclosure was an aluminum housing made by Hammond. I think it was a 1590WLBFLBK 2"x2"x1". Mouser and Allied have many Hammond products. You might also look at http://www.hammondmfg.com for more info on Hammond products. I have not done an analysis for 900 because my 900 MHz transverter uses a Toshiba module to drive a Motorola cellular PA strip. The input to that RFMD part is also matched on the apps board. That is simply a matter of tweaking the reflection down (and gain comes up). I'll run an output match for 900 MHz when I get a chance and post it.

How much activity is there in your area on 900 and 1296? I grew up in Dubuque and went to EE grad school in Madison. We occasionally get back to Wisconsin for a visit now that I'm retired.

I'm also curious about 927 MHz FM activity there. I have been really enjoying operating and repeater building on 900.

Check http://k5tra.net/weaksig.html for more info on my homebrew transverters and other projects.

73,

Tom / K5TRA

From: w1ghz-transverter-builders@yahoogroups.com [mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of thepalmhq
Sent: Wednesday, May 15, 2013 4:23 PM
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] Re: RF2126 evaluation board for 902?

This is a great write-up, Tom (see the linked file here <http://f1.grp.yahoofs.com/v1/ePyTUQC6ceIExqzRV5A_driome2H2C_MD_JUMNmqNe8SzFNEJuMHe_eVwuIOQ7GLvGgwaGQ1z2KwcIwRYzS-mQ/1296%20MHz%20PreDriver%20Z-Matching.pdf> .)

I have two questions.....1) where did you get that great enclosure and 2) have you done a similar analysis for 900 MHz?

Thanks and 73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, "K5TRA" wrote:
>
>
>
> Zack,

> I have used the RFMD SPB2026 chip for a predriver on 1296. I'm sure it could be matched for 902/903 operation. Applications boards are available on eBay (item 160445927901), and the IC's are also available from another seller. They were originally intended for 1.8 GHz PCS applications. I rematched the applications board for use in my 1296 transverter. I'll post the details of the output match on that app board in the files section.
> Tom / K5TRA

389. Re: [w1ghz-transverter-builders] Re: RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-16 13:55:33 UTC
From: Zack Widup
Topic: 370 Message: 389

I routinely work N9LB, KC9BQA and W9GA on 902 and 1296 from here in east central Illinois. N9LB is in Madison and the other two are in the Milwaukee area.

There is quite a number of active stations in Illinois and a few in Indiana on 902 and above. W9ZIH is on 1296, 3456 and 10G. He gave up on 902 a few years ago because the commercial crud was so bad at his QTH that he couldn't hear anything. W9SNR roves in the Chicago area in contests and has all bands from 50 MHz through 24 GHz in his Rover vehicle.

I'm usually active in VHF contests, Microwave Activity Days (first Saturday of each month) and other random times from a hill in EN50rl near Gibson City, Illinois.

73, Zack W9SZ

On 5/16/13, K5TRA <k5tra@...> wrote:
> Hi David,
>
> Thanks. The enclosure was an aluminum housing made by Hammond. I think it
> was a 1590WLBFLBK 2"x2"x1". Mouser and Allied have many Hammond products.
> You might also look at http://www.hammondmfg.com for more info on
> Hammond
> products. I have not done an analysis for 900 because my 900 MHz
> transverter
> uses a Toshiba module to drive a Motorola cellular PA strip. The input to
> that RFMD part is also matched on the apps board. That is simply a matter
> of
> tweaking the reflection down (and gain comes up). I'll run an output match
> for 900 MHz when I get a chance and post it.
>
>
>
> How much activity is there in your area on 900 and 1296? I grew up in
> Dubuque and went to EE grad school in Madison. We occasionally get back to
> Wisconsin for a visit now that I'm retired.
>
>
>
> I'm also curious about 927 MHz FM activity there. I have been really
> enjoying operating and repeater building on 900.
>
>
>
> Check http://k5tra.net/weaksig.html for more info on my homebrew

> transverters and other projects.
>
>
>
> 73,
>
> Tom / K5TRA
>
>
>
>
>
>
>
> From: w1ghz-transverter-builders@yahoogroups.com
> [mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of thepalmhq
> Sent: Wednesday, May 15, 2013 4:23 PM
> To: w1ghz-transverter-builders@yahoogroups.com
> Subject: [w1ghz-transverter-builders] Re: RF2126 evaluation board for 902?
>
>
>
>
>
> This is a great write-up, Tom (see the linked file here
> <http://f1.grp.yahoofs.com/v1/ePyTUQC6ceIExqzRV5A_driome2H2C_MD_JUMNmqNe8SzF
> NEJuMHe_eVwuIOQ7GLvGgwaGQ1z2KwcIwRYzS-mQ/1296%20MHz%20PreDriver%20Z-Matching
> .pdf> .)
>
> I have two questions.....1) where did you get that great enclosure and 2)
> have you done a similar analysis for 900 MHz?
>
> Thanks and 73,
>
> David W9HQ
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "K5TRA" wrote:
>>
>>
>>
>> Zack,
>> I have used the RFMD SPB2026 chip for a predriver on 1296. I'm sure it
> could be matched for 902/903 operation. Applications boards are available
> on
> eBay (item 160445927901), and the IC's are also available from another
> seller. They were originally intended for 1.8 GHz PCS applications. I
> rematched the applications board for use in my 1296 transverter. I'll post
> the details of the output match on that app board in the files section.
>> Tom / K5TRA

>
>
>
>

390. Building notes on 2304 and 3456 MHz transverters by VK4ADC

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-16 20:59:30 UTC
From: thepalmhq
Topic: 390 Message: 390

I'm finding that there is build and operation activity on W1GHZ transverters that isn't documented in this group, so over the next few weeks I'll post links to some of those.

Here are two great write-ups by Doug Hunter, VK4ADC, who is building the 2304 and 3456 transverters. There are not only some great building tips in here, but some intriguing ideas for cheap test equipment as well. (VK4ADC just joined this group, so welcome Doug!)

Building a W1GHZ-based 2.4GHz Transverter
<http://www.vk4adc.com/web/index.php/microwave-projects/63-transverters/\
142-building-a-w1ghz-based-13cm-transverter.html>

Building a W1GHZ-based 3.4 GHz Transverter
<http://www.vk4adc.com/web/index.php/microwave-projects/63-transverters/\
143-building-a-w1ghz-based-9cm-transverter>

391. FS: 903 amps

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-17 03:50:31 UTC
From: dualraoul
Topic: 391 Message: 391

Almost out of the above 2m buisness, found a couple 903 amps I no longer need. These are just bare pulls, 8w in,70-90w out. $100 plus postage for both.

Thanks
Ron
K0IDT

392. kits for sale?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-19 08:46:42 UTC
From: donaldhawbaker
Topic: 392 Message: 392

Anyone have kits for sale? Thanks. 73s

393. Re: Building notes on 2304 and 3456 MHz transverters by VK4ADC

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-19 12:24:12 UTC
From: donaldhawbaker
Topic: 390 Message: 393

A lot of good information. Thanks.

--- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq" <thepalmhq@...> wrote:
>
> I'm finding that there is build and operation activity on W1GHZ
> transverters that isn't documented in this group, so over the next few
> weeks I'll post links to some of those.
>
> Here are two great write-ups by Doug Hunter, VK4ADC, who is building the
> 2304 and 3456 transverters. There are not only some great building tips
> in here, but some intriguing ideas for cheap test equipment as well.
> (VK4ADC just joined this group, so welcome Doug!)
>
> Building a W1GHZ-based 2.4GHz Transverter
> <http://www.vk4adc.com/web/index.php/microwave-projects/63-transverters/\
> 142-building-a-w1ghz-based-13cm-transverter.html>
>
> Building a W1GHZ-based 3.4 GHz Transverter
> <http://www.vk4adc.com/web/index.php/microwave-projects/63-transverters/\
> 143-building-a-w1ghz-based-9cm-transverter>
>

394. Re: FS: 903 amps

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-19 12:26:19 UTC
From: donaldhawbaker
Topic: 391 Message: 394

What kind of amps? Make model supply voltage connectors?

--- In w1ghz-transverter-builders@yahoogroups.com, "dualraoul" <ronkolarik801@...> wrote:
>
> Almost out of the above 2m buisness, found a couple 903 amps I no longer
> need. These are just bare pulls, 8w in,70-90w out. $100 plus postage
> for both.
>
> Thanks
> Ron
> K0IDT
>

395. Re: RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-20 13:27:11 UTC
From: thepalmhq
Topic: 370 Message: 395

Here in EN43 there is WV9E. He has 1296 now and bought a DEM
transverter for 902, but I'm not sure if he's got that on the air yet.
His location down in the river valley is RF challenging, to say the
least, but he does get out.

And I hope to be on the air with at least 902 and 1296 "Real Soon Now".

I need to start working on W9RPM to add 902 and 1296 as well......

73,

David W9HQ

--- In w1ghz-transverter-builders@yahoogroups.com, Zack Widup wrote:
>
> I routinely work N9LB, KC9BQA and W9GA on 902 and 1296 from here in
> east central Illinois. N9LB is in Madison and the other two are in the
> Milwaukee area.

396. Re: FS: 903 amps

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-20 16:42:59 UTC
From: dualraoul
Topic: 391 Message: 396

Don,

They're ex-cell phone amps, bare no connectors, copper heat spreader,
26vdc B+, 5vdc bias. I'll send you a picture direct, I don't think
it will go through the list.

Ron
K0IDT

--- In w1ghz-transverter-builders@yahoogroups.com, "donaldhawbaker" <donaldhawbaker@...>
wrote:
>
> What kind of amps? Make model supply voltage connectors?
>
> --- In w1ghz-transverter-builders@yahoogroups.com, "dualraoul" <ronkolarik801@> wrote:
> >
> > Almost out of the above 2m buisness, found a couple 903 amps I no longer
> > need. These are just bare pulls, 8w in,70-90w out. $100 plus postage
> > for both.
> >
> > Thanks
> > Ron
> > K0IDT
> >
>

397. Re: [w1ghz-transverter-builders] Re: RF2126 evaluation board for 902?

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-20 22:48:05 UTC
From: Scott
Topic: 370 Message: 397
Attachments: 1 described; binary payloads are missing from this source WARC

I'd start with 902 first. That band is simply amazing at what it will
do. It is most definitely my favorite UHF band up here in Eau Claire.
It works easily, even with trees and hills. Plus, it is quite easy to
get power on the band. I have 150W and 300W re-purposed cell amps that
one used to be able to find on ebay for about $30-50.

N0EDV
EN45fa

On 5-20-2013 13:27, thepalmhq wrote:
>
> Here in EN43 there is WV9E. He has 1296 now and bought a DEM
> transverter for 902, but I'm not sure if he's got that on the air yet.
> His location down in the river valley is RF challenging, to say the
> least, but he does get out.
>
> And I hope to be on the air with at least 902 and 1296 "Real Soon Now".
>
> I need to start working on W9RPM to add 902 and 1296 as well......
>
> 73,
>
> David W9HQ
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, Zack Widup wrote:
> >
> > I routinely work N9LB, KC9BQA and W9GA on 902 and 1296 from here in
> > east central Illinois. N9LB is in Madison and the other two are in the
> > Milwaukee area.
>
>

--

398. Transverter Builds by ZL2BKC, 925 and 3456 MHz

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-22 15:27:03 UTC
From: thepalmhq
Topic: 398 Message: 398

Here's a nice write-up, with photos, of a 925 MHz transverter based on the W1GHZ design, built by Wayne Knowles, ZL2BKC in New Zealand:

ZL2BKC 925 MHz Transverter Build
<http://zl2bkc.com/projects/925-mhz-transverter/>

He's also got a page for a W1GHZ 9 cm transverter, but without as much detail:

ZL2BKC 9 cm Transverter Project
<http://zl2bkc.com/projects/9cm-transverter/>
If anybody knows how to get in touch with Wayne, please invite him to join the group!

73,

David W9HQ

399. Re: Transverter Builds by ZL2BKC, 925 and 3456 MHz

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-23 06:30:18 UTC
From: Wayne Knowles
Topic: 398 Message: 399

No need to encourage me as I have been a member of this list (albeit very silently) for several months.

Sorry for not giving more detail on the setups on the web page. It is a bit of a teaser page which I will update when I have more time to write up the IF sequencer I have been using (there has been some interest in it and I hope to make it available later in the year)

73
Wayne ZL2BKC

Sent from my iPod

400. Backpack 3.4Ghz Xvert

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-27 10:00:57 UTC
From: adam
Topic: 400 Message: 400

You can find some photo's regarding the rover xverter for 3.4GHz (modified for Eu band 3400MHz).

http://www.hrvhf.net/index.php/forum/index.php?topic=2402.msg20337#msg20337

Adam, 9A4QV
http://lna4all.blogspot.com/

401. Re: Backpack 3.4Ghz Xvert

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-27 17:32:03 UTC
From: David Palm
Topic: 400 Message: 401

Adam,

Thanks for passing this along. It looks like you have a great product there.

It's interesting that just last week I was discussing this MCL part again with my colleague Chris, KF9OP, who is a professional RF engineer. We've been looking at it for a while, thinking it would make a great broadband LNA. But such an annoying package to work with! I'm wondering if you've had any success putting them on by hand?

Thanks for sharing this and I hope you're really successful selling them.

73,

David W9HQ

402. Re: Backpack 3.4Ghz Xvert

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-27 19:30:49 UTC
From: adam
Topic: 400 Message: 402

--- In w1ghz-transverter-builders@yahoogroups.com, David Palm <thepalmhq@...> wrote:
>
> Adam,
>
> Thanks for passing this along. It looks like you have a great product
> there.
>
> It's interesting that just last week I was discussing this MCL part again
> with my colleague Chris, KF9OP, who is a professional RF engineer. We've
> been looking at it for a while, thinking it would make a great broadband
> LNA. But such an annoying package to work with! I'm wondering if you've
> had any success putting them on by hand?
>
> Thanks for sharing this and I hope you're really successful selling them.
>
> 73,
>
> David W9HQ
>

Hello David,

Thanks for the question. I do not want to make this post looks like advertising but will tell you that the number of sold LNA is in hundred...
I am just preparing a new batch with the bias-T option on board.

Putting the MMIC by hand? Oh, come on, this is a rather big component, a peace of cake. All my LNA are hand made and checked and tested prior the shipment, everything is soldered by hands using the solder tool. I know it looks like a machine but it is not.

We do have a access to a latest pick n place machine (placer) but we are not using (yet). If we will have a batch of few hundreds (hopefuly) :-) than we will use the machine.

I can make a short movie if you are interested in that, but most of the guys have no problems soldering SC-70 housing at all. I am not even using a magnifier for the job.

If the PCB is made properly, the job is easy.
You have to see how I solder the Si-4133 on the homemade PCB using the tone transfer method :-)
http://www.hrvhf.net/index.php/forum/index.php?topic=2318.msg20085#msg20085
http://www.hrvhf.net/index.php/forum/index.php?topic=1261.msg20160#msg20160

P.S. liquid flux make things much easier.

Regarding the PSA4-5043+, well it is a very good broadband LNA with good overall characteristics for everyday use. I have a bunch of guys who made all kind of measurements and the bottom clue is that this component is really best buy.

Not the state of the art Noise figure and the gain but also not the junk component. Price is also OK.

Adam, 9A4QV

403. Re: Transverter Builds by ZL2BKC, 925 and 3456 MHz

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-30 18:45:20 UTC
From: Bob Vaughan
Topic: 398 Message: 403

--- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq" <thepalmhq@...> wrote:
>
> Here's a nice write-up, with photos, of a 925 MHz transverter based on
> the W1GHZ design, built by Wayne Knowles, ZL2BKC in New Zealand:
>
> ZL2BKC 925 MHz Transverter Build
> <http://zl2bkc.com/projects/925-mhz-transverter/>
>
> He's also got a page for a W1GHZ 9 cm transverter, but without as much
> detail:
>
> ZL2BKC 9 cm Transverter Project
> <http://zl2bkc.com/projects/9cm-transverter/>
> If anybody knows how to get in touch with Wayne, please invite him to
> join the group!
>
> 73,
>
> David W9HQ
>

Wayne's email address is listed here:
zl2bkc.com/projects/zlpll/

Bob
AF6RR

404. Transverter Build by SV1IXP on 13 cm

Yahoo group: w1ghz-transverter-builders
Date: 2013-05-30 19:01:04 UTC
From: thepalmhq
Topic: 404 Message: 404

Another nice write-up and photos of a 2304 MHz build by Kostas, SV1IXP:

13 cm Transverter <http://sv1ixp.wordpress.com/13cm-transverter/>

And this 1296 MHz transverter at least has certain connections to the W1GHZ design. At the very least I find these write-ups very useful just to see how various builders lay out their projects in the enclosure:

1.2 GHz Transverter <http://sv1ixp.wordpress.com/1-2ghz-transverter/>

Nicely done, Kostas.

405. Re: Backpack 3.4Ghz Xvert

Yahoo group: w1ghz-transverter-builders
Date: 2013-06-03 15:04:59 UTC
From: thepalmhq
Topic: 400 Message: 405

Hello Adam,

You wrote:

>> Putting the MMIC by hand? Oh, come on, this is a rather big component, a peace of cake. All my LNA are hand made and checked and tested prior the shipment, everything is soldered by hands using the solder tool. I know it looks like a machine but it is not.

Yes, I see now that I was confused with the PMA-545, which looks like a difficult part to handle. The SOT-343 looks a lot easier. Great!

>> Regarding the PSA4-5043+, well it is a very good broadband LNA with good overall characteristics for everyday use. I have a bunch of guys who made all kind of measurements and the bottom clue is that this component is really best buy.
>> Not the state of the art Noise figure and the gain but also not the junk component. Price is also OK.

Your LNA board looks excellent and I personally have no problem at all with that sort of advertisement in this group--it benefits us all. I have a couple more questions. First (showing my ignorance here) is it stuffed differently when deployed for different bands or one deployment fits all? And I see the part is good up to 4 GHz. Have you tried it at 3456 MHz?

Thanks and 73,

David W9HQ

406. Re: Backpack 3.4Ghz Xvert

Yahoo group: w1ghz-transverter-builders
Date: 2013-06-04 21:02:58 UTC
From: adam
Topic: 400 Message: 406

David,

You know what they said: there are no stupid questions just stupid answers.

I have not tested the LNA on 3.4GHz but looking the data sheet the gain will be really small, and some other component should be used instead.

This design is working from 28Mhz to 2320Mhz with specified characteristics. So one LNA fits all, nothing to touch.
It is true that some tuning on the input/output can result of increased gain on higher bands (1.2 2.3 3.4 Ghz). This is why I left the place on the pcb for the 0603 SMD component onm the input /output pin to ground for those who wish to play with C or L to tweak the performance on higher bands.

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq" <thepalmhq@...> wrote:
>
> Hello Adam,
>
> You wrote:
>
> >> Putting the MMIC by hand? Oh, come on, this is a rather big
> component, a peace of cake. All my LNA are hand made and checked and
> tested prior the shipment, everything is soldered by hands using the
> solder tool. I know it looks like a machine but it is not.
>
> Yes, I see now that I was confused with the PMA-545, which looks like a
> difficult part to handle. The SOT-343 looks a lot easier. Great!
>
> >> Regarding the PSA4-5043+, well it is a very good broadband LNA with
> good overall characteristics for everyday use. I have a bunch of guys
> who made all kind of measurements and the bottom clue is that this
> component is really best buy.
> >> Not the state of the art Noise figure and the gain but also not the
> junk component. Price is also OK.
>
> Your LNA board looks excellent and I personally have no problem at all
> with that sort of advertisement in this group--it benefits us all. I
> have a couple more questions. First (showing my ignorance here) is it
> stuffed differently when deployed for different bands or one deployment
> fits all? And I see the part is good up to 4 GHz. Have you tried it at
> 3456 MHz?
>
> Thanks and 73,
>

> David W9HQ
>

407. SHF-0289s to give-away, to someone who will use them

Yahoo group: w1ghz-transverter-builders
Date: 2013-06-05 00:50:31 UTC
From: thepalmhq
Topic: 407 Message: 407

I was just looking into trying to get some power on 1296 MHz in time for the August UHF contest and I realized that the SHF-0289s that I bought from "rfextra" on EBay are not MMICs, but HFETs that need to be biased, finagled, etc. to work. The PCB that "rfextra" sold me for the SOT-89 package will definitely not work with these It's set up for MMICs, not for all the biasing and matching necessary for these parts.

I don't have the time or the know-how to horse around with these.

So.....that means that I have five (5) SHF-0289s to give away to someone who will really use them. That includes you Adam (9A4QV) in Croatia, or anybody else who has a use for these. Send me a PM through the group and your address and the first guy who asks gets them.

73,

David W9HQ

408. Re: SHF-0289s to give-away, to someone who will use them

Yahoo group: w1ghz-transverter-builders
Date: 2013-06-05 06:44:56 UTC
From: adam
Topic: 407 Message: 408

Thanks for offer David,

Well, I do have this Rfextra PCB but doesn't need that component.
The easy and really fast way of getting 30dBm+ on 1296 is using MMIC from Prewell.

My amp after rover xverter on 23cm is made with PH-630 and is pushing out some 31 dbm. Data sheet say that even more power can be squeezed but i was lazy to tune this to the max.
I do have also PH-530 that can push out max 30 dBm on the same band.
This components are good up to 3 GHz.
If you can find them, then the job is easy...

Maybe easier to find AH-102a mmic, 27dbm on 1296 and 2320 and even some 25dbm on 3400 Mhz.
My 3400 backpack rover is using final with the AH-102a.

Adam

--- In w1ghz-transverter-builders@yahoogroups.com, "thepalmhq" <thepalmhq@...> wrote:
>
> I was just looking into trying to get some power on 1296 MHz in time for the August UHF contest and I realized that the SHF-0289s that I bought from "rfextra" on EBay are not MMICs, but HFETs that need to be biased, finagled, etc. to work. The PCB that "rfextra" sold me for the SOT-89 package will definitely not work with these It's set up for MMICs, not for all the biasing and matching necessary for these parts.
>
> I don't have the time or the know-how to horse around with these.
>
> So.....that means that I have five (5) SHF-0289s to give away to someone who will really use them. That includes you Adam (9A4QV) in Croatia, or anybody else who has a use for these. Send me a PM through the group and your address and the first guy who asks gets them.
>
> 73,
>
> David W9HQ
>

409. Re: [w1ghz-transverter-builders] Re: SHF-0289s to give-away, to someone who will use them

Yahoo group: w1ghz-transverter-builders
Date: 2013-06-05 10:01:11 UTC
From: Scott
Topic: 407 Message: 409
Attachments: 1 described; binary payloads are missing from this source WARC

Of course, there is always the MOSFET brick module...10 mW drive should give at least 3 or 4 Watts out. Not necessarily the model of efficiency at around 20%, but very simple to use. They can take up to 200 mW of drive and deliver 18W out.

http://www.rfparts.com/ra18h1213g.html

N0EDV

On 6-5-2013 06:44, adam wrote:
>
> Thanks for offer David,
>
> Well, I do have this Rfextra PCB but doesn't need that component.
> The easy and really fast way of getting 30dBm+ on 1296 is using MMIC
> from Prewell.
>
> My amp after rover xverter on 23cm is made with PH-630 and is pushing
> out some 31 dbm. Data sheet say that even more power can be squeezed
> but i was lazy to tune this to the max.
> I do have also PH-530 that can push out max 30 dBm on the same band.
> This components are good up to 3 GHz.
> If you can find them, then the job is easy...
>
> Maybe easier to find AH-102a mmic, 27dbm on 1296 and 2320 and even
> some 25dbm on 3400 Mhz. My 3400 backpack rover is using final with the
> AH-102a.
>
> Adam
>
>
> --- In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders%40yahoogroups.com>, "thepalmhq"
> <thepalmhq@...> wrote:
> >
> > I was just looking into trying to get some power on 1296 MHz in time
> for the August UHF contest and I realized that the SHF-0289s that I
> bought from "rfextra" on EBay are not MMICs, but HFETs that need to be
> biased, finagled, etc. to work. The PCB that "rfextra" sold me for the
> SOT-89 package will definitely not work with these It's set up for
> MMICs, not for all the biasing and matching necessary for these parts.
> >
> > I don't have the time or the know-how to horse around with these.

> >
> > So.....that means that I have five (5) SHF-0289s to give away to
> someone who will really use them. That includes you Adam (9A4QV) in
> Croatia, or anybody else who has a use for these. Send me a PM through
> the group and your address and the first guy who asks gets them.
> >
> > 73,
> >
> > David W9HQ
> >
>
>

--

410. QRP2000 USB synthesizer

Yahoo group: w1ghz-transverter-builders
Date: 2013-07-31 17:24:01 UTC
From: thepalmhq
Topic: 410 Message: 410

I have been yearning for a programmable frequency signal generator for troubleshooting these transverter builds.

I finally settled on the QRP2000 USB synthesizer and so far this has worked out just great. You can read more about my specific build here:

QRP2000 USB Synthesizer
<http://w9hq.blogspot.com/2013/07/im-back-to-working-on-ham-radio.html>

So far I've used this to check out a DEM transverter on 902 MHz by listening to the harmonics of an 11 MHz signal and also to check out a little intermediate amplifier board for 1296 MHz with an ADL5324 part on it. But there are tons of uses for this dude. For W1GHZ builders it can also be used as the LO for any of the boards in the line-up. Supposedly the Si570 "A" part isn't supposed to do 1152 MHz, but mine does. So it's a snap to get an LO at 720, 756, or 1152 (but it's a square wave, so filtering is required.)

It's a super-useful piece of test gear.

73,

David W9HQ

411. RE: [w1ghz-transverter-builders] QRP2000 USB synthesizer

Yahoo group: w1ghz-transverter-builders
Date: 2013-07-31 19:20:52 UTC
From: Danny Pease
Topic: 410 Message: 411
Attachments: 2 described; binary payloads are missing from this source WARC

I have been using the Si570 generator kit from K5BCQ for weak signal source for a while now and have thought I would eventually try to use it for transverter LO but have not gotten that far yet. This kit has a pretty high fundamental output, something like +13 dBm. I have been able to hear harmonics past 5760 MHz and I suspect with proper hard ware, detectable well above 10 GHz. It does not need a computer to program and has an LCD display and rotary encoder that makes it simple to change frequency. Frequency stability is much better than I expected and it has a routine to calibrate it against a known source. I have found multiple uses for it already. It will run on 2 AA batteries, at least for a short period of time, making it very handy for a weak signal source in the field. Best part is the price, I got mine for just about $50 shipped.

http://www.qsl.net/k5bcq/Kits/Kits.html

Danny NG9R

From: w1ghz-transverter-builders@yahoogroups.com
[mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of thepalmhq
Sent: Wednesday, July 31, 2013 12:24 PM
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] QRP2000 USB synthesizer

I have been yearning for a programmable frequency signal generator for troubleshooting these transverter builds.

I finally settled on the QRP2000 USB synthesizer and so far this has worked out just great. You can read more about my specific build here:

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<http://w9hq.blogspot.com/2013/07/im-back-to-working-on-ham-radio.html>

So far I've used this to check out a DEM transverter on 902 MHz by listening to the harmonics of an 11 MHz signal and also to check out a little intermediate amplifier board for 1296 MHz with an ADL5324 part on it. But there are tons of uses for this dude. For W1GHZ builders it can also be used as the LO for any of the boards in the line-up. Supposedly the Si570 "A" part isn't supposed to do 1152 MHz, but mine does. So it's a snap to get an LO at 720, 756, or 1152 (but it's a square wave, so filtering is required.)

It's a super-useful piece of test gear.

73,

David W9HQ

412. 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-05 15:37:08 UTC
From: <merlin42@...>
Topic: 412 Message: 412

Hi i am building the Local oscillator 1152 MHZ amd 1296 MHZ RSU Transverter as I live in the uk,
and the UK Band Plan for 23cm is form 1240.000 to 1325.000
will i need to change any value of the capacitors for the UK.
thank you for any help you can give.
David

413. Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-05 17:06:23 UTC
From: Zack Widup
Topic: 412 Message: 413

Hi David,

What frequency in this segment do you plan on using? The weak-signal segment? What is that frequency?

It appears the hairpin filters in both the LO and transverter will just cover that frequency range but the capacitors on the stripline filters for the LO will have to be recalculated. They may not cover this entire range and will have to be specified for a narrower frequency segment.

73, Zack W9SZ

On 10/5/13, merlin42@... <merlin42@...> wrote:
>
>
> Hi i am building the Local oscillator 1152 MHZ amd 1296 MHZ RSU Transverter
> as I live in the uk,
> and the UK Band Plan for 23cm is form 1240.000 to 1325.000
> will i need to change any value of the capacitors for the UK.
>
> thank you for any help you can give.
>
> David
>
>

414. RE: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-06 08:26:04 UTC
From: Iain
Topic: 412 Message: 414

Hi All

I have built the 1152 and 1296 transverter as designed and it works well here in the UK. Are you wanting to use a strange segment of the 23cms band ? I used it for the first time in the 23 cms UKAC RSGB contest a couple of weeks ago and apart from an antenna failure all went well.

73's Iain G4DPF

-----Original Message-----
From: w1ghz-transverter-builders@yahoogroups.com
[mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of Zack Widup
Sent: 05 October 2013 18:06
To: w1ghz-transverter-builders@yahoogroups.com
Subject: Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Hi David,

What frequency in this segment do you plan on using? The weak-signal segment? What is that frequency?

It appears the hairpin filters in both the LO and transverter will just cover that frequency range but the capacitors on the stripline filters for the LO will have to be recalculated. They may not cover this entire range and will have to be specified for a narrower frequency segment.

73, Zack W9SZ

On 10/5/13, merlin42@... <merlin42@...> wrote:
>
>
> Hi i am building the Local oscillator 1152 MHZ amd 1296 MHZ RSU Transverter
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> will i need to change any value of the capacitors for the UK.
>
> thank you for any help you can give.
>
> David
>
>

Yahoo! Groups Links

No virus found in this message.
Checked by AVG - www.avg.com
Version: 2014.0.4142 / Virus Database: 3604/6714 - Release Date: 10/01/13

415. Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-06 14:11:50 UTC
From: Zack Widup
Topic: 412 Message: 415

Actually, isn't 1296 the weak-signal segment pretty much everywhere? I
believe Paul designed his set of transverters for us weak-signal guys,
and used values that would work in the weak-signal segments.

I'm using one of the W1GHZ 1296 transverters as an IF for 47 GHz.
Hopefully everything works when I get it put together!

73, Zack W9SZ

On 10/6/13, Iain <iain@...> wrote:
> Hi All
>
> I have built the 1152 and 1296 transverter as designed and it works well
> here in the UK. Are you wanting to use a strange segment of the 23cms band
> ?
> I used it for the first time in the 23 cms UKAC RSGB contest a couple of
> weeks ago and apart from an antenna failure all went well.
>
> 73's Iain G4DPF
>
> -----Original Message-----
> From: w1ghz-transverter-builders@yahoogroups.com
> [mailto:w1ghz-transverter-builders@yahoogroups.com] On Behalf Of Zack Widup
> Sent: 05 October 2013 18:06
> To: w1ghz-transverter-builders@yahoogroups.com
> Subject: Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator
> 1152
> (UK)
>
> Hi David,
>
> What frequency in this segment do you plan on using? The weak-signal
> segment? What is that frequency?
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> It appears the hairpin filters in both the LO and transverter will
> just cover that frequency range but the capacitors on the stripline
> filters for the LO will have to be recalculated. They may not cover
> this entire range and will have to be specified for a narrower
> frequency segment.
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> 73, Zack W9SZ
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> On 10/5/13, merlin42@... <merlin42@...> wrote:
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>> thank you for any help you can give.
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>> David
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>>
>
>
> ------------------------------------
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> Yahoo! Groups Links
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> No virus found in this message.
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> Version: 2014.0.4142 / Virus Database: 3604/6714 - Release Date: 10/01/13
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>

416. RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-06 17:03:27 UTC
From: <g4bbh@...>
Topic: 412 Message: 416

I built the RSU board and 1152 oscillator board as per Pauls instructions and RSU parts list. a couple of years ago. I had to fiddle a little with multiplier bias on A1 and A2 to get sufficient drive then it ran quite well. Use good quality NPO capacitors on the comb filter. A 64MHz computer type crystal oscillator isnot stable enough for my use even after selecting from many sources. I eventually purchased a microsynth 1152 synthesised oscillator from W7BAS which has a pretty good TCXO and an option for 10MHz reference input which I use with my 10MHz standard. You can easily swap out the PC controller chip if you need a different LO frequency any time - W7BAS charges little more than the cost of the chip for this service. Using a mini-kits EME179A23 preamplifier the W1GHZ transverter board equals or even betters most other transverters. Try to fit a 23cm filter between the preamp and transverter board. Even a Toko helical helps remove a lot cross mod and spurii from nearby commercial systems.
Be careful how you interface it to your 2m rig. Keep drive well below 10dBm at 2m. 100mW WILL blow the mixer. I have seen out two mixers during trials.

The 1152MHz oscillator 9th harmonic gives a useful marker on 10368MHz if you ever try 3cm :-)
Dick G4BBH

---In w1ghz-transverter-builders@yahoogroups.com,
<w1ghz-transverter-builders@yahoogroups.com> wrote:

Hi i am building the Local oscillator 1152 MHZ amd 1296 MHZ RSU Transverter as I live in the uk,
and the UK Band Plan for 23cm is form 1240.000 to 1325.000
will i need to change any value of the capacitors for the UK.
thank you for any help you can give.
David

417. Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-06 17:54:37 UTC
From: Zack Widup
Topic: 412 Message: 417

I built a phase-locked low noise oscillator for my 902 transverter (KD6OZH design from Nov/Dec 1999 QEX). It's locked to an Isotemp 10 MHz OCXO that has really good accuracy, stability and phase noise characteristics. I am working on a 1296 transverter using the W1GHZ boards as the heart of the system. I might try a direct-frequency synthesis design for 1296. This would be a 96 MHz LO with a design similar to the one WA1ZMS has used at 124 and 241 GHz. I wouldn't need that stability at 1296, but the circuit is simple and should do quite well. It would be as accurate and stable as the OCXO is.

I get a quite useful marker at 24192 MHz from a 1152 MHz source.

73, Zack W9SZ

On Sun, Oct 6, 2013 at 12:03 PM, <g4bbh@...> wrote:

> **
>
>
> I built the RSU board and 1152 oscillator board as per Pauls instructions
> and RSU parts list. a couple of years ago. I had to fiddle a little with
> multiplier bias on A1 and A2 to get sufficient drive then it ran quite
> well. Use good quality NPO capacitors on the comb filter. A 64MHz
> computer type crystal oscillator isnot stable enough for my use even after
> selecting from many sources. I eventually purchased a microsynth 1152
> synthesised oscillator from W7BAS which has a pretty good TCXO and an
> option for 10MHz reference input which I use with my 10MHz standard. You
> can easily swap out the PC controller chip if you need a different LO
> frequency any time - W7BAS charges little more than the cost of the chip
> for this service. Using a mini-kits EME179A23 preamplifier the W1GHZ
> transverter board equals or even betters most other transverters. Try to
> fit a 23cm filter between the preamp and transverter board. Even a Toko
> helical helps remove a lot cross mod and spurii from nearby commercial
> systems.
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> Be careful how you interface it to your 2m rig. Keep drive well below
> 10dBm at 2m. 100mW WILL blow the mixer. I have seen out two mixers during
> trials.
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> The 1152MHz oscillator 9th harmonic gives a useful marker on 10368MHz if
> you ever try 3cm :-)
>
> Dick G4BBH
>

>
>
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> ---In w1ghz-transverter-builders@yahoogroups.com, <
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> Hi i am building the Local oscillator 1152 MHZ amd 1296 MHZ RSU
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> thank you for any help you can give.
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> David
>
>
>

418. RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 00:51:55 UTC
From: <merlin42@...>
Topic: 412 Message: 418

Hi guys Thank you for all the info this will be my first transverter, one of many I hope.

73`s

David (2E0LBZ)

---In w1ghz-transverter-builders@yahoogroups.com, <w9sz.zack@...> wrote:

I built a phase-locked low noise oscillator for my 902 transverter (KD6OZH design from Nov/Dec 1999 QEX). It's locked to an Isotemp 10 MHz OCXO that has really good accuracy, stability and phase noise characteristics. I am working on a 1296 transverter using the W1GHZ boards as the heart of the system. I might try a direct-frequency synthesis design for 1296. This would be a 96 MHz LO with a design similar to the one WA1ZMS has used at 124 and 241 GHz. I wouldn't need that stability at 1296, but the circuit is simple and should do quite well. It would be as accurate and stable as the OCXO is.

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thank you for any help you can give.
David

419. Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 01:20:32 UTC
From: Mark Korroch
Topic: 412 Message: 419

Dick & others,

I don't think W7BAS is still making synthesizers. His web site is still up, but I've tried emailing and mailing him to get a new chip for my synthesizer, and I have never received a reply.

73,
Mark WB8TGY

From: "g4bbh@..." <g4bbh@...>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Sunday, October 6, 2013 1:03 PM
Subject: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

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The 1152MHz oscillator 9th harmonic gives a useful marker on 10368MHz if you ever try 3cm :-)

Dick G4BBH

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thank you for any help you can give.
David

420. Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 04:29:32 UTC
From: Chase Turner
Topic: 412 Message: 420

I have no direct knowledge about W7BAS (though I did one time review one of his LO's on my website- I've found something better with the http://reactancelabs.com stuff, though there are certainly cheaper ways to go), but I do know that W7BAS had quit responding to messages from me and emails from many people after he had announced making a 1296 xverter that never came to pass. No idea if he took money up front and didn't deliver, if life got to be too much, no components, etc. Lot's of reasons that can happen to explain his behavior. It'd be the right thing to do to say on a website that everything was on hold and get to you in the number taken, etc, which is what makes the whole bit a little tragic- a few simple words from the man behind the mirror and most people would probably understand whatever was the case. Instead, we are left with nothing but non-answers, and that's a real shame.

Chase
--
Chase Turner
W4TI
http://w4ti.com

On Sun, Oct 6, 2013 at 9:20 PM, Mark Korroch <wb8tgy@...> wrote:

> **
>
>
> Dick & others,
>
> I don't think W7BAS is still making synthesizers. His web site is still
> up, but I've tried emailing and mailing him to get a new chip for my
> synthesizer, and I have never received a reply.
>
> 73,
> Mark WB8TGY
>
> ------------------------------
> *From:* "g4bbh@..." <g4bbh@btinternet.com>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> *Sent:* Sunday, October 6, 2013 1:03 PM
> *Subject:* [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator
> 1152 (UK)
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> I built the RSU board and 1152 oscillator board as per Pauls
> instructions and RSU parts list. a couple of years ago. I had to fiddle a

> little with multiplier bias on A1 and A2 to get sufficient drive then it
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> 64MHz computer type crystal oscillator isnot stable enough for my use even
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> thank you for any help you can give.
> David
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--
Chase Turner
W4TI
http://w4ti.com

421. Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 10:41:41 UTC
From: Scott
Topic: 412 Message: 421
Attachments: 1 described; binary payloads are missing from this source WARC

Not sure how much the W7BAS units cost, but N5AC sells his ApolLO-1
board for $149, built and tested. It is physically considerably larger
than the W7BAS unit, but it is also programmable using your PC. It can
therefore be used as an LO source for 902 MHz and up. You may need to
move the position of the onboard inductor to move the range of the unit,
but it is documented in the instructions that come with it. As
received, it covers the LO ranges needed for the DEMI 2304-10368
transverters. I have one that I use as a weak signal source for
transverter testing. I will also be using one as the base oscillator
for our local beacon project, setting up on 2.3, 3.4, 5.7 and 10 GHz.

http://www.n5ac.com/blog/products-page/apollo-synthesizers/apollo-i-synthesizer-assembled-tested/

N0EDV
EN45fa

On 10/7/2013 4:29 AM, Chase Turner wrote:
> I have no direct knowledge about W7BAS (though I did one time review
> one of his LO's on my website- I've found something better with the
> http://reactancelabs.com stuff, though there are certainly cheaper
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> Chase
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> Chase Turner
> W4TI
> http://w4ti.com <http://w4ti.com/>
>
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> On Sun, Oct 6, 2013 at 9:20 PM, Mark Korroch <wb8tgy@...
> <mailto:wb8tgy@...>> wrote:

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> I don't think W7BAS is still making synthesizers. His web site is
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> 73,
> Mark WB8TGY
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> ---
> *From:* "g4bbh@... <mailto:g4bbh@...>"
> <g4bbh@... <mailto:g4bbh@...>>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>
> *Sent:* Sunday, October 6, 2013 1:03 PM
> *Subject:* [w1ghz-transverter-builders] RE: 1296 RSU and Local
> Oscillator 1152 (UK)
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> ---In w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>,
> <w1ghz-transverter-builders@yahoogroups.com
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> W4TI
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422. Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 14:42:59 UTC
From: Zack Widup
Topic: 412 Message: 422

Reactance Labs is the company of Tony Long KC6QHP. Tony makes quality products. He himself is active on all the bands up to 47 GHz. He may have 78 GHz in the works.

I bought a synthesized LO board from Alan VK3XPD in Dayton a couple years ago. It was made by an Australian ham but I don't think Alan made them. It is much smaller than an ApolLO board and covers a similar frequency range. It was about $100. I'm not sure where to get them now.

73, Zack W9SZ

On 10/6/13, Chase Turner <ke4qdl@...> wrote:
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> his LO's on my website- I've found something better with the
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> emails from many people after he had announced making a 1296 xverter that
> never came to pass. No idea if he took money up front and didn't deliver,
> if life got to be too much, no components, etc. Lot's of reasons that can
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> website that everything was on hold and get to you in the number taken,
> etc, which is what makes the whole bit a little tragic- a few simple words
> from the man behind the mirror and most people would probably understand
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> On Sun, Oct 6, 2013 at 9:20 PM, Mark Korroch <wb8tgy@...> wrote:
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>> *From:* "g4bbh@..." <g4bbh@...>
>> *To:* w1ghz-transverter-builders@yahoogroups.com
>> *Sent:* Sunday, October 6, 2013 1:03 PM
>> *Subject:* [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator
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423. RE: Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 18:17:08 UTC
From: <adam9a4qv@...>
Topic: 412 Message: 423

Hello,

Beside the Reactance labs, there is also ZLPLL using the same ADF4351 PLL but offering much more for the same or less money.

There is also Si4133 PLL from the VK3XDK with the 16 frequencies for just 110$ comparing to much higher prices US DEMI oscillator using the Si-4133.

100 + $ is too much for the LO for the cheap rover transverter. The DB6NT 23cm complete kit is 199 Euro, but here we are talking about descent complete transverter 500mW out.

If you want to build yourself a cheap PLL then this may be good thing:
http://sv1ixp.wordpress.com/si4133-rf-synthesizer/
(I built one of these with a minor modificaton, and this one is OK for all rover transverters, even OK for the 6 and 3cm transverters.

have fun
Adam

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424. Re: Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 18:37:35 UTC
From: Zack Widup
Topic: 412 Message: 424

That is probably the one I was thinking about. I bought one from Alan VK3XPD and tested it out when I got it but then put it back into the box. I'd have to dig it out to see who made it.

All my microwave transverters through 24 GHz use the low-noise PLL of KD6OZH that I mentioned earlier, some with a modified LO based on a G8ACE circuit. The PLL circuit is still the KD6OZH circuit. I've been through several generations of boards I designed for this. The latest uses almost entirely surface-mount devices including the dual-modulus prescaler and the MC145158D. The only part that isn't surface-mount is the PIC chip that programs the PLL chip. I really haven't been able to go wrong with this circuit. Extremely low phase noise, stable and accurate depending on what you use for a 10 MHz reference. Most of the Isotemp OCXO's you find around these days are very good.

When you get above 10 GHz phase noise becomes a BIG concern. The WA1ZMS direct-synthesis approach is a way to get around phase noise problems.

At 902 or 1296, phase noise isn't so much of a concern so these ADF4351 and Si-4133 designs should be adequate.

73, Zack W9SZ

On Mon, Oct 7, 2013 at 1:17 PM, <adam9a4qv@...> wrote:

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425. On LO Stability in the W1GHZ "Cheap" xvrtr

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 19:02:02 UTC
From: Joshua M. Arritt
Topic: 412 Message: 425

I've been enjoying this thread!

My "cheap rover" boxes are all running the standard cheese-ball computer xtal. Terrible. Yes, it takes 10 min to warm up and sit. Yes, you can sneeze on it and make it drift down the band 10kc.

The synth LOs are nice, would be a great step up. I'm employing one today in my 3cm rig, though it's ref'd to an ovenized 10MHz oscillator (GPS discipline is coming down the road...). If I get around to building the next batch of W1GHZ boxes, perhaps I'll employ one of the LOs listed so far as a centralized "good LO".

But 4 years ago, I had the very same feeling going in that Adam, 9A4QV, points out -- my goal was a "cheap" box (Paul also stated this goal in the orig doc), a not-so-nice-but-working transverter set that runs half the cost of a nice LO. If that's your construction goal, wherein you don't mind if the breeze picks up the whole rig and sends it flying off the rock escarpment on which you're perched trying to operate, the $1.25 computer xtal with all its wretched limitations needed to suffice.

Knowing these limitations, and not caring one bit about the IF rig's display (mine consistently reads about -12kc below RF freq), I elected to do 2 things hardware-wise to help keep the thing on freq:

1.) Replace the little TO-92 5V reg with a TO-220 larger package IC, leads kept long, and the device is bent down against the xtal w/ a thin film of thermal grease. This is a cheap way of "ovenizing" the xtal, or at least putting it at a temp higher than ambient. This seemed to help.

2.) Insulate the xtal/Vreg -- shucks, the whole LO board - with some foam rubber tightly wound with 2" "antenna tape". This keeps the wind from knocking you off freq.

If one doesn't mind "mapping" to an IF freq that's a little off reference, the above mods have provided me with reasonable stability in freq (given warm-up) -- enough to eek out a few SSB/CW Qs and find some beacons.

Otherwise, better freq stability and accuracy is relatively "affordable" these days with those nice LOs. ;)

73,
- Josh / KF4YLM

On 10/7/2013 2:17 PM, adam9a4qv@... wrote:
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Yahoo group: w1ghz-transverter-builders
Date: 2013-10-07 19:17:25 UTC
From: Zack Widup
Topic: 412 Message: 426

I think I mentioned in another posting that if you're using one of the newer Isotemp 10 MHz OCXO's you can find pretty cheaply in various places, the things are so good that you don't need to bother with GPS disciplining. I made over 100 QSO's in the 10 GHz contest this year, which included four on 24 GHz. My LO's locked to the Isotemp OCXO's I picked up somewhere for $20 apiece were plenty adequate on these bands without GPS disciplining. They take about 15 minutes to achieve stability and accuracy that is good enough for 10 GHz. That is accuracy to within 20 to 40 Hz at 10 GHz and stability in the Hz range on that band.

I do calibrate the OCXO's against a rubidium standard at home every couple months.

73, Zack W9SZ

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> the orig doc), a not-so-nice-but-working transverter set that runs half
> the cost of a nice LO. If that's your construction goal, wherein you
> don't mind if the breeze picks up the whole rig and sends it flying off
> the rock escarpment on which you're perched trying to operate, the $1.25
> computer xtal with all its wretched limitations needed to suffice.
>
> Knowing these limitations, and not caring one bit about the IF rig's
> display (mine consistently reads about -12kc below RF freq), I elected
> to do 2 things hardware-wise to help keep the thing on freq:
>
> 1.) Replace the little TO-92 5V reg with a TO-220 larger package IC,

> leads kept long, and the device is bent down against the xtal w/ a thin
> film of thermal grease. This is a cheap way of "ovenizing" the xtal, or
> at least putting it at a temp higher than ambient. This seemed to help.
>
> 2.) Insulate the xtal/Vreg -- shucks, the whole LO board - with some
> foam rubber tightly wound with 2" "antenna tape". This keeps the wind
> from knocking you off freq.
>
> If one doesn't mind "mapping" to an IF freq that's a little off
> reference, the above mods have provided me with reasonable stability in
> freq (given warm-up) -- enough to eek out a few SSB/CW Qs and find some
> beacons.
>
> Otherwise, better freq stability and accuracy is relatively "affordable"
> these days with those nice LOs. ;)
>
> 73,
> - Josh / KF4YLM
>
>

427. Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-08 22:09:16 UTC
From: zl2bkc
Topic: 412 Message: 427

Adam (and others)

A small correction to your post - the Reactance labs board does not use the ADF4351 but chooses to use a Mini-circuits module on the board. Based on the lower grade PN spec and small frequency range I speculate the mini circuits board is based on the ADF4360 series chips.

The ZLPLL was born out of necessity and disappointment with what was on the market. For applications requiring low PN, easy ability to change frequency and an on-board OCXO then it is the way to go.

Keeping on subject with W1GHZ transverters I am using one in 3.4GHz transverter after removing one of the LO gain stages as I was driving it with the fundamental frequency and it was not needing to multiply.

I recently packaged up one of my development boards into a box which also makes a nice stand alone signal source for checking out receivers:

http://zl2bkc.com/2013/09/28/standalone-signal-source/

The same board can also be used as an exciter for beacons by upgrading to the CW keyer version of the firmware, with future support for JT4 and FSK441 in the making.

73,
Wayne ZL2BKC
http://www.zl2bkc.com

428. RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-09 00:00:43 UTC
From: <adam9a4qv@...>
Topic: 412 Message: 428

Hello Wayne,

thanks for the update, I really tought that Tony is using ADF4351, so it is ADF4360 series, good.

By the way I like your PLL boards, nice approach and overall performance. It is not easy to find the guy who knows how tp program this small bugs and understand what the RF guys want from this bugs out. You have both qualities and nice result, no doubt about it.

20$ should be enough for the Si-4133 if somebody can stear the PCB at home and order the parts from the e-bay. Of course, looking for a plug and play option will bring us to the price that we have now from the various sources.

For the hardcore builders, there is nice French signal generator design using the same ADF4351 :

http://f6bon.albert.free.fr/adf4351.html

Adam

---In w1ghz-transverter-builders@yahoogroups.com, <w.knowles@...> wrote:

Adam (and others)

A small correction to your post - the Reactance labs board does not use the ADF4351 but chooses to use a Mini-circuits module on the board. Based on the lower grade PN spec and small frequency range I speculate the mini circuits board is based on the ADF4360 series chips.

The ZLPLL was born out of necessity and disappointment with what was on the market. For applications requiring low PN, easy ability to change frequency and an on-board OCXO then it is the way to go.

Keeping on subject with W1GHZ transverters I am using one in 3.4GHz transverter after removing one of the LO gain stages as I was driving it with the fundamental frequency and it was not needing to multiply.

I recently packaged up one of my development boards into a box which also makes a nice stand alone signal source for checking out receivers:

http://zl2bkc.com/2013/09/28/standalone-signal-source/
http://zl2bkc.com/2013/09/28/standalone-signal-source/

The same board can also be used as an exciter for beacons by upgrading to the CW keyer version of the firmware, with future support for JT4 and FSK441 in the making.

73,
Wayne ZL2BKC
http://www.zl2bkc.com http://www.zl2bkc.com

429. Re: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-09 02:03:28 UTC
From: Wayne Knowles
Topic: 412 Message: 429

Being fortunate enough to have been brought up in both the software field while being a ham I do get pleasure in marrying 2 of my skills together.

At some stage in the future I plan on releasing some of my code and board designs, with my earlier revision PLL based on the Si4133 at the top of the list, along with my sequencer board. Currently I have a lot of projects on my plate along with young family so it will eventually happen in good time once I tidy up the code so others can adapt it to suit their personal needs.

73,
Wayne ZL2BKC

>_____
> From: "adam9a4qv@..." <adam9a4qv@...>
>To: w1ghz-transverter-builders@yahoogroups.com
>Sent: Wednesday, 9 October 2013 1:00 PM
>Subject: [w1ghz-transverter-builders] RE: 1296 RSU and Local Oscillator 1152 (UK)
>
>
>
>
>Hello Wayne,
>
>
>thanks for the update, I really tought that Tony is using ADF4351, so it is ADF4360 series, good.
>
>
>By the way I like your PLL boards, nice approach and overall performance. It is not easy to find the guy who knows how tp program this small bugs and understand what the RF guys want from this bugs out. You have both qualities and nice result, no doubt about it.
>
>20$ should be enough for the Si-4133 if somebody can stear the PCB at home and order the parts from the e-bay. Of course, looking for a plug and play option will bring us to the price that we have now from the various sources.
>
>
>For the hardcore builders, there is nice French signal generator design using the same ADF4351 :
>
>
>http://f6bon.albert.free.fr/adf4351.html
>
>

>Adam
>
>
>
>---In w1ghz-transverter-builders@yahoogroups.com, <w.knowles@...> wrote:
>
>
>Adam (and others)
>
>A small correction to your post - the Reactance labs board does not use the ADF4351 but chooses to use a Mini-circuits module on the board. Based on the lower grade PN spec and small frequency range I speculate the mini circuits board is based on the ADF4360 series chips.
>
>The ZLPLL was born out of necessity and disappointment with what was on the market. For applications requiring low PN, easy ability to change frequency and an on-board OCXO then it is the way to go.
>
>Keeping on subject with W1GHZ transverters I am using one in 3.4GHz transverter after removing one of the LO gain stages as I was driving it with the fundamental frequency and it was not needing to multiply.
>
>I recently packaged up one of my development boards into a box which also makes a nice stand alone signal source for checking out receivers:
>
>http://zl2bkc.com/2013/09/28/standalone-signal-source/
>
>The same board can also be used as an exciter for beacons by upgrading to the CW keyer version of the firmware, with future support for JT4 and FSK441 in the making.
>
>
>73,
>Wayne ZL2BKC
>http://www.zl2bkc.com
>
>
>

430. 66MHz Crystals for W1GHZ 222 Xverter

Yahoo group: w1ghz-transverter-builders
Date: 2013-10-20 01:32:54 UTC
From: Chase Turner
Topic: 430 Message: 430

Hi All,

I'm looking to see if anyone happens to have any 66MHz osc. xtals for the W1GHZ 222 Xverter. I initially picked up some boards for me and some friends (when it was announced by Paul that he had a supply of PA and filters to go around) and can't seem to locate a suitable replacement xtal since they've been discontinued. I've been told by Paul that I could spend the big money with a DEMI ApolloVHFLO (plus time modifying the entire unit, especially if I wanted to use 144 as the IF) or use some SMT chip- he has no recommendations, but seems to think any will do, so long as you do the math correctly because you'd otherwise fry any of the SMT stuff with the previous design.

Thus, I'd like to keep this as simple and cheap as possible. I'd like 4 66MHz xtals if anyone has any. Please drop me a note off the reflector. Thanks.

--
Chase Turner
W4TI
http://w4ti.com

431. HF Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2014-01-25 17:47:02 UTC
From: <nekoshorty@...>
Topic: 431 Message: 431

I may be on the wrong list for this but here goes. I would to build an inexpensive transverter for 20 meters to connect to my 5 watt 80/40 meter cw qrp rig. Only need 5 watts output.

Thanks,
Larry
WB4HLX

432. Re: [w1ghz-transverter-builders] HF Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2014-01-25 18:38:33 UTC
From: Zack Widup
Topic: 431 Message: 432

You want to convert 80 or 40 meters to 20 meters, is that correct? It shouldn't be difficult but you'd have to roll your own as far as I know. This isn't covered by any of Paul's designs. But all you'd need is the proper crystal and oscillator, a double balanced mixer and a few filters and amps (MMIC's work fine at those frequencies).

73, Zack W9SZ

On Sat, Jan 25, 2014 at 11:47 AM, <nekoshorty@...> wrote:

>
>
> I may be on the wrong list for this but here goes. I would to build an
> inexpensive transverter for 20 meters to connect to my 5 watt 80/40 meter
> cw qrp rig. Only need 5 watts output.
>
>
> Thanks,
> Larry
> WB4HLX
>
>
>

433. Re: [w1ghz-transverter-builders] HF Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2014-01-25 18:52:05 UTC
From: Larry Irwin
Topic: 431 Message: 433

On 01/25/2014 12:38 PM, Zack Widup wrote:
> You want to convert 80 or 40 meters to 20 meters, is that correct? It
> shouldn't be difficult but you'd have to roll your own as far as I know.

Yes, that is correct.

> This isn't covered by any of Paul's designs. But all you'd need is the
> proper crystal and oscillator, a double balanced mixer and a few
> filters and amps (MMIC's work fine at those frequencies).
>
> Do you know where I can find a schematic for such a transverter?
> I have searched on the web quite a bit with no luck.
>

> Thanks,
> Larry
> WB4HLX
>
>
>

--
73
Larry WB4HLX

434. Re: [w1ghz-transverter-builders] HF Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2014-01-25 19:12:52 UTC
From: Zack Widup
Topic: 431 Message: 434

I'll see if I can find something. Maybe I can throw together a schematic
for you.

73, Zack W9SZ

On Sat, Jan 25, 2014 at 12:52 PM, Larry Irwin <nekoshorty@...> wrote:

>
>
>
> On 01/25/2014 12:38 PM, Zack Widup wrote:
>
>
> You want to convert 80 or 40 meters to 20 meters, is that correct? It
> shouldn't be difficult but you'd have to roll your own as far as I know.
>
>
> Yes, that is correct.
>
> This isn't covered by any of Paul's designs. But all you'd need is the
> proper crystal and oscillator, a double balanced mixer and a few filters
> and amps (MMIC's work fine at those frequencies).
>
> Do you know where I can find a schematic for such a transverter? I
>> have searched on the web quite a bit with no luck.
>>
>
> Thanks,
>> Larry
>> WB4HLX
>>
>>
>
> --
> 73
> Larry WB4HLX
>
>
>

435. Re: [w1ghz-transverter-builders] HF Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2014-01-25 19:23:51 UTC
From: Larry Irwin
Topic: 431 Message: 435

On 01/25/2014 01:12 PM, Zack Widup wrote:
> I'll see if I can find something. Maybe I can throw together a
> schematic for you.
>
> 73, Zack W9SZ
>

Great! Thank you very much.

--
73
Larry WB4HLX

436. Re: [w1ghz-transverter-builders] HF Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2014-01-25 21:20:29 UTC
From: Buck Calabro
Topic: 431 Message: 436

On 25 January 2014 12:47, <nekoshorty@...> wrote:

> I may be on the wrong list for this but here goes. I would to build
> an inexpensive transverter for 20 meters to connect to my 5 watt 80/40
> meter cw qrp rig. Only need 5 watts output.
>
>
> Thanks,
> Larry
> WB4HLX
>

http://www.njqrp.org/4017/index.html has some useful notes (the manual is a broken link) for a 40M to 17M transverter. You might get some ideas from that.
--buck KC2HIZ

437. Re: [w1ghz-transverter-builders] HF Transverter

Yahoo group: w1ghz-transverter-builders
Date: 2014-01-25 23:19:28 UTC
From: Larry Irwin
Topic: 431 Message: 437

On 01/25/2014 03:20 PM, Buck Calabro wrote:
> On 25 January 2014 12:47, <nekoshorty@...
> <mailto:nekoshorty@...>> wrote:
>
> I may be on the wrong list for this but here goes. I would to
> build an inexpensive transverter for 20 meters to connect to my 5
> watt 80/40 meter cw qrp rig. Only need 5 watts output.
>
>
> Thanks,
> Larry
> WB4HLX
>
>
> http://www.njqrp.org/4017/index.html has some useful notes (the manual
> is a broken link) for a 40M to 17M transverter. You might get some
> ideas from that.
> --buck KC2HIZ
>

Thanks. Will check it out.

--
73
Larry WB4HLX

438. 1296 RSU transverter kit

Yahoo group: w1ghz-transverter-builders
Date: 2014-03-18 01:58:46 UTC
From: R M Barlow
Topic: 438 Message: 438

I purchased a 1296 RSU xvtr kit (as part of a group purchase), several years ago. I will not be able to assemble same, due to arthritis, and other issues.
I will sell it for what I have invested in it. (~ $80).
If interested, please contact me, off list.
73 de Ron n4gjv

439. 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2014-05-09 00:23:05 UTC
From: <merlin42@...>
Topic: 412 Message: 439

Hi guys:
I Have tried ever think I can think off but I can only get -7dbm on the output off the 1152 LO
I had to replace the mar-1 with a mar-6 to get that.
Can anyone help.

440. Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2014-05-09 00:54:53 UTC
From: Zack Widup
Topic: 412 Message: 440

I've built several of these LO's, each with a with different oscillator, different than the ones Paul used. E.g. an ApolLO and another homebrew phase-locked circuit at 96 MHz.I never get the same output levels and have to play with MMIC's. You may have to swap the last couple MMIC's for a couple ERA-3's or ERA-5's. The most I've been able to squeeze out of the 1152 MHz LO board is +3 dBm.

Note there is a place on the transverter board ahead of the mixer for another MMIC, so if you cannot get +7 dBm for the mixer from the LO board itself, you can add more gain at that point. Gain is cheap!

73, Zack W9SZ

On Thu, May 8, 2014 at 7:23 PM, <merlin42@...> wrote:

>
>
> Hi guys:
>
> I Have tried ever think I can think off but I can only get -7dbm on the
> output off the 1152 LO
>
> I had to replace the mar-1 with a mar-6 to get that.
>
> Can anyone help.
>
>
>

441. Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2014-05-09 01:21:36 UTC
From: Scott
Topic: 412 Message: 441
Attachments: 1 described; binary payloads are missing from this source WARC

Paul's construction article says he gets about -5 dBm out of the 1152
oscillator board, so you're not too far off. You could try lowering the
values of R2 and R3 a small amount. As Zach said, you can add an MMIC
at A5 position on the transverter board that has about 12-14 dB of gain
at 1152 MHz.

N0EDV

On 5/9/2014 12:23 AM, merlin42@... wrote:
>
> Hi guys:
>
> I Have tried ever think I can think off but I can only get -7dbm on
> the output off the 1152 LO
>
> I had to replace the mar-1 with a mar-6 to get that.
>
> Can anyone help.
>
>

--

442. Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2014-05-09 22:16:10 UTC
From: merlin42@...
Topic: 412 Message: 442

Hi Thank you I`ve try that it look likes I may have to add another MMIC.
From David (2E0LBZ) 73s

443. Re: [w1ghz-transverter-builders] 1296 RSU and Local Oscillator 1152 (UK)

Yahoo group: w1ghz-transverter-builders
Date: 2014-05-09 22:23:36 UTC
From: merlin42@...
Topic: 412 Message: 443

Hi Thanks for your help.
I will swap the last MMIC's for a ERA-3
and see out that go`s
David (2E0LBZ) 73`s

444. Extra boards and amp project for sale

Yahoo group: w1ghz-transverter-builders
Date: 2014-07-01 20:29:23 UTC
From: Ethan Miller K8GU
Topic: 444 Message: 444

I've got two of the W1GHZ transverter boards for 2304 or 3456 that I'm not realistically ever going to get around to using. I'll ship them anywhere in the US for $15 (for both).

I also have one of the AML PCS amplifiers that WA2AAU has been selling around at swaps for cheap (but, I can't remember how cheap so correct me if I'm wrong). Have the article on converting it to 2304 also. Will ship it to you for $25 in the US.

Would like to see someone use them rather than have them languish in my shop... May find some more stuff here.

73,

--Ethan, K8GU/3.

--
http://www.k8gu.com/
Repair. Re-use. Re-purpose. Recycle.

445. board layout

Yahoo group: w1ghz-transverter-builders
Date: 2015-03-14 17:00:12 UTC
From: js@...
Topic: 445 Message: 445

Hello,

Is it possible to find the layout(in 1/1 format) for the w1ghz 23cm transverter (1152, and 144/23cm mixer). for do it myself the pcb.

tks

Jean F6GTH...

446. RE: [w1ghz-transverter-builders] board layout

Yahoo group: w1ghz-transverter-builders
Date: 2015-03-14 18:26:48 UTC
From: Iain G4DPF
Topic: 445 Message: 446

Hi

The price of pcb's and postage is extremely good value from w1ghz

73's Iain G4DPF

From: w1ghz-transverter-builders@yahoogroups.com
[mailto:w1ghz-transverter-builders@yahoogroups.com]
Sent: 14 March 2015 17:00
To: w1ghz-transverter-builders@yahoogroups.com
Subject: [w1ghz-transverter-builders] board layout

Hello,

Is it possible to find the layout(in 1/1 format) for the w1ghz 23cm
transverter (1152, and 144/23cm mixer). for do it myself the pcb.

tks

Jean F6GTH...

No virus found in this message.
Checked by AVG - www.avg.com
Version: 2014.0.4800 / Virus Database: 4257/9301 - Release Date: 03/14/15

447. KX3 for Transverters

Yahoo group: w1ghz-transverter-builders
Date: 2015-03-16 02:02:54 UTC
From: Ted M
Topic: 445 Message: 447

Hi, I have had an intest in Transverters. I have been told that I can use the KX3 and Transverters from companies like Down East Microwave and they will work out of the box. I was told and it seems that the KX3 is desighned with ports just for this kind of device. Are Tranverters with a KX3 basiclly plug and play items? Best RegardsTed
From: "js@... [w1ghz-transverter-builders]" <w1ghz-transverter-builders@yahoogroups.com>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Saturday, March 14, 2015 10:00 AM
Subject: [w1ghz-transverter-builders] board layout

  Hello,

Is it possible to find the layout(in 1/1 format) for the w1ghz 23cm transverter (1152, and 144/23cm mixer). for do it myself the pcb.

tks

Jean F6GTH...

448. W1GHZ has update the 1296 RSU

Yahoo group: w1ghz-transverter-builders
Date: 2015-06-30 12:46:04 UTC
From: thepalmhq@...
Topic: 448 Message: 448

I noticed the other day that W1GHZ has made a couple of important improvements to the 1296 MHz transverter board.

The first is to replace the resistive receive/transmit splitter with a Minicircuits TCP-2-25X power splitter. This change eliminates the losses in the resistors and would obviate having to do the PIN diode modification proposed by Adam, 9A4QV and documented in the Photos section.

The second change to the PCB is to accomodate SOT-89 MMICs in the receive and transmit paths. here's what Paul says about the net effect of these changes:

Performance of the new version is improved. Transmit power is linear up to about 10 mW with 144 MHz input of -5 dBm, and can be driven up at least 5 more dB; the old version saturated around 8 mW out. Receive noise figure is about 5 dB, vs. about 8 dB for the old version. This
NF was low enough that I wanted to be sure it was only at 1296 MHz, so I put a good interdigital
filter in front of the transverter – the NF rose to about 5.5 dB, so the number is real. Then I
added a PGA-103 preamp3 before the filter, which dropped the NF to about 1.3 dB. This performance is getting serious!

Read more about these and other mods here
http://www.w1ghz.org/MBT/1296_Update_and_Enhancements_2014.pdf.

449. Re: [w1ghz-transverter-builders] W1GHZ has update the 1296 RSU

Yahoo group: w1ghz-transverter-builders
Date: 2015-06-30 13:13:48 UTC
From: Zack Widup
Topic: 448 Message: 449

Darn it, I'm just about done with a transverter using the older board!
I already did a PIN diode mod to mine. I have been using a PIN diode
version of the 902 MHz transverter for a couple years.

I've been using a preamp using an ATF36077/MGA61563 designed by
WD5AGO/W5LUA. I'll use the same design preamp on 1296.

73, Zack W9SZ

On 6/30/15, thepalmhq@... [w1ghz-transverter-builders]
<w1ghz-transverter-builders@yahoogroups.com> wrote:
> I noticed the other day that W1GHZ has made a couple of important
> improvements to the 1296 MHz transverter board.
>
>
> The first is to replace the resistive receive/transmit splitter with a
> Minicircuits TCP-2-25X power splitter. This change eliminates the losses in
> the resistors and would obviate having to do the PIN diode modification
> proposed by Adam, 9A4QV and documented in the Photos section.
>
>
> The second change to the PCB is to accomodate SOT-89 MMICs in the receive
> and transmit paths. here's what Paul says about the net effect of these
> changes:
>
>
> Performance of the new version is improved. Transmit power is linear up to
> about 10 mW with
> 144 MHz input of -5 dBm, and can be driven up at least 5 more dB; the old
> version saturated
> around 8 mW out. Receive noise figure is about 5 dB, vs. about 8 dB for the
> old version. This
> NF was low enough that I wanted to be sure it was only at 1296 MHz, so I put
> a good interdigital
> filter in front of the transverter – the NF rose to about 5.5 dB, so the
> number is real. Then I
> added a PGA-103 preamp3 before the filter, which dropped the NF to about 1.3
> dB. This
> performance is getting serious!
>
>
> Read more about these and other mods here
> http://www.w1ghz.org/MBT/1296_Update_and_Enhancements_2014.pdf.
>
>
>

>
>

450. Group buy of Temwell filters?

Yahoo group: w1ghz-transverter-builders
Date: 2015-06-30 14:57:02 UTC
From: thepalmhq@...
Topic: 450 Message: 450

I have just ordered a Flex-1500 to serve as an IF rig and will be building a W1GHZ Miniverter-F to get 144 MHz IF (see the write-up here http://www.w1ghz.org/new/Miniverter-F.pdf.)

The Miniverter-F board takes a Temwell TT67709B-146M http://www.temwell.com.tw/PDF/TT67709B-146M-Performance.pdf filter. The filters are $18 directly from Temwell, but they have a $100 minimum order (and minimum of 2 of any particular filter) so would need to buy at least 6 of them.

DEM wants $30 plus some shipping for one of them.

So, anybody out there interested in some filters? If there's enough interest I'll buy and distribute them: $18 x however many you want + est $4 shipping (possibly less, if it ends up being quite a bit cheaper to ship.)

Besides the 146 MHz filter they also have these which might be interesting (the Miniverter-F can be stuffed for 222 or 432 MHz as well):

TT67709B-146M http://www.temwell.com.tw/PDF/TT67709B-146M-Performance.pdf
TT6761B-220M http://www.temwell.com.tw/PDF/TT6761B-220M-Performance.pdf
TT6762B-223.5M http://www.temwell.com.tw/PDF/TT6762B-223.5M-Performance.pdf
TT67100D-435M http://www.temwell.com.tw/PDF/TT67100D-435M-Performance.pdf
TT6778B-435M http://www.temwell.com.tw/PDF/TT6778B-435M-Performance.pdf
TT67550E-902.5M http://www.temwell.com.tw/PDF/TT67550E-902.5M-performance.pdf

I'd like to order by Friday, 3 July, so if you're interested please e-mail me privately and we'll discuss. If there's not enough interest that's fine too, I'll just bite the bullet and order one from DEM.

73,

David W9HQ

451. Re: Group buy of Temwell filters?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-01 13:13:01 UTC
From: ok1dxd@...
Topic: 450 Message: 451

Dear all,
just have see on Temwell web page the !Big Sale!! All item 30%~40%OFF !!
2015.07.01~2015.08.31 It means the type we are need is for 11 USD only...

Tomas, OK1DXD

452. Re: Group buy of Temwell filters?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-01 14:05:11 UTC
From: thepalmhq@...
Topic: 450 Message: 452

As Tomas (OK1DXD) just pointed out, Temwell is running a sale which started today. The filters we want are now $11 apiece. Temwell is in Taiwan, however, so they are quoting me $40 shipping for the order.

I currently have "orders" for 11 filters, so we'll meet the minimum and are currently looking at about $3.50 per-filter shipping from Taiwan, plus some postage here in the U.S. That's still a really good deal since the sale price more than offsets the shipping from Taiwan.

So here's your big chance to save, save, save on some nice helical filters. The more you spend, the more you save ;o)

Seriously, I'd like to place this order tomorrow (Thursday) night so I catch the Temwell folks in the office on their Friday morning. If you are interested in filters for a W1GHZ Miniverter-F or any other project, let me know and we'll get yours in the mix.

73,

David W9HQ

---In w1ghz-transverter-builders@yahoogroups.com, <ok1dxd@seznam.cz> wrote :

Dear all,
just have see on Temwell web page the !Big Sale!! All item 30%~40%OFF !!
2015.07.01~2015.08.31 It means the type we are need is for 11 USD only...

Tomas, OK1DXD

453. How to know if a W1GHZ transverter receiver is working properly?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-02 15:00:33 UTC
From: thepalmhq@...
Topic: 453 Message: 453

This week I received and stuffed one of the new W1GHZ 1296 MHz boards, using the Minicircuits power divider, and have been able to test out the receive side. I have some questions for the more experienced builders here.

First some details: 1152 MHz LO power to the mixer is about 5 dBm. I'm using the INA-10386 as the receiver amplifier. I connected a 1/4 wave ground plane antenna on an SMA connector to the receive input. My signal generator is putting out about -10 dBm into another 1296 MHz 1/4 ground plane antenna.

My general question is what sort of 144 MHz IF signal level should I be seeing? How do I know if the receiver side of the transverter is working as it should?

With a spectrum analyzer connected to the IF port and the signal generator right up close I see a nice peak on the IF, but with the signal generator about 15 feet away the IF response at 144 MHz is just a small bump off the noise floor.

I'm such a newby at this that I don't know what I should expect to see and so I don't know if this is working correctly. So, experienced builders, how do us newbs know if our receive section is working as it should?

(If you really want to educate us, perhaps frame your answer for those who do and those who don't have access to a spectrum analyzer.)

73,

David W9HQ

454. Re: [w1ghz-transverter-builders] How to know if a W1GHZ transverter receiver is working properly?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-02 16:21:38 UTC
From: Joshua M. Arritt
Topic: 453 Message: 454

What's your spec an's real noise floor? Have you measured it?

Prob want to use your 2m IF rig as a test RX in that scenario. Spec An
doesn't have as hot a front end. Ultimately, the 2m IF rig is what matters.

While the free-space radiate sig gen idea does work, it's hard to
control. If you want a better-controlled test, would recommend adding
some fixed attenuators. Start -60dB or so from your -10dBm source.
That will allow you to connect the sig gen directly to the antenna port
of the xvrtr.

Easy enough to build some homebrew attenuators with some resistors, or
at this freq, varying lengths of RG-58. (hihi) Alt, you can find
surplus fixed and step attenuators galore to perform the same function,
perhaps with a modicum of "accuracy".

Build several attenuators, with varying amounts of attenuation... -6dB,
-10dB, -20dB. Connect in series to achieve the desired "weak signal".

W/ the 2m IF rig connected, you should strive to detect sigs weaker than
-110dBm if you're expecting to work much.

If you want to put your spec an back on the IF port, and reduce the
attenuation to, say, -70dBm @ 1296Mc (within the comfort zone of your
spec an), you can get a sense of the conversion loss figure on the RX
path.... i.e., RF level in to IF level out.

VY 73,
- Josh / KF4YLM

On 02.07.2015 11:00, thepalmhq@... [w1ghz-transverter-builders] wrote:
>
>
> This week I received and stuffed one of the new W1GHZ 1296 MHz boards,
> using the Minicircuits power divider, and have been able to test out
> the receive side. I have some questions for the more experienced
> builders here.
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> First some details: 1152 MHz LO power to the mixer is about 5 dBm.
> I'm using the INA-10386 as the receiver amplifier. I connected a 1/4
> wave ground plane antenna on an SMA connector to the receive input.
> My signal generator is putting out about -10 dBm into another 1296 MHz
> 1/4 ground plane antenna.
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> My general question is what sort of 144 MHz IF signal level should I

> be seeing? How do I know if the receiver side of the transverter is
> working as it should?
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> With a spectrum analyzer connected to the IF port and the signal
> generator right up close I see a nice peak on the IF, but with the
> signal generator about 15 feet away the IF response at 144 MHz is just
> a small bump off the noise floor.
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> I'm such a newby at this that I don't know what I should expect to see
> and so I don't know if this is working correctly. So, experienced
> builders, how do us newbs know if our receive section is working as it
> should?
>
> (If you really want to educate us, perhaps frame your answer for those
> who do and those who don't have access to a spectrum analyzer.)
>
> 73,
>
> David W9HQ
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>
>

455. Preamp before or after the filter?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-03 21:58:16 UTC
From: thepalmhq@...
Topic: 455 Message: 455

I feel like I've already asked this question before, but I have searched and cannot find it. So I'm going to ask again.

I'm wondering if the order antenna --> preamp --> filter is preferable to antenna --> filter --> preamp and, if so, why exactly?

I have a nice interdigital filter for 1296 MHz that is robust enough to transmit at least modest power through, so from a system architecture standpoint it's easier to have the antenna run directly into the filter, the output of the filter into the W1GHZ rx/tx relay board and then preamp -->transverter on the receive side and power amplifier --> transverter on the transmit side. Basically it would let me use the single filter for both transmitting and receiving.

But I don't want to do it if it's not a good option. Are there concrete downsides to have the filter connected directly to the antenna, then the rx/tx switch, then the receive preamp?

73,

David W9HQ

457. Re: How to know if a W1GHZ transverter receiver is working properly?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-03 22:11:14 UTC
From: thepalmhq@...
Topic: 453 Message: 457

Thanks for the details, Josh. I had a conversation with KF9OP who said exactly the same thing -- in this case the spectrum analyzer is not the best tool, being way less sensitive at any given frequency than a dedicated receiver. That's actually kind of good because those without an analyzer aren't at a disadvantage in this case.

He suggested the same technique you did -- take my -10 dBm sig gen, run it into 40 or 50 dB of attenuation, apply that to the receive input and measure the output to find out the total path loss.

But long and short is that both my receive and transmit sides seem to be working on 1296, with about 14 dBm out on transmit. I have a board built with an ADL5324 to boost that into a usable range, so next is to finish a PGA-103 preamp, put this whole thing together, then make some contacts. Very excited to get this on the air! My first QSO with a home built transverter is going to be a big thrill. I'll probably start on-air testing with K2DRH because even though we're 133 miles apart he could hear me if I whistled from my back porch.

73,

David W9HQ

458. Re: [w1ghz-transverter-builders] Preamp before or after the filter?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-03 22:21:03 UTC
From: James Duffey
Topic: 455 Message: 458

The order antenna --> preamp --> filter is usually preferable to antenna --> filter --> preamp because most filters have some loss and that loss adds directly to the noise figure. So unless the input filter is very low loss, it is usually preferable to have it after the preamp. This is probably most assuredly the case for your 1296 MHz filter.

For terrestrial work at lower frequencies, like 6M or 2M one can usually get by with a higher noise figure, so the filter can be higher loss and in front of the preamp. If the preamp device is a robust device and doesn’t introduce much IMD, the filter will serve the same function before and after and protect the radio front end from IMD. - Duffey KK6MC

On Jul 3, 2015, at 3:58 PM, thepalmhq@gmail.com [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

> I feel like I've already asked this question before, but I have searched and cannot find it. So I'm going to ask again.
>
> I'm wondering if the order antenna --> preamp --> filter is preferable to antenna --> filter --> preamp and, if so, why exactly?
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>
> But I don't want to do it if it's not a good option. Are there concrete downsides to have the filter connected directly to the antenna, then the rx/tx switch, then the receive preamp?
>
> 73,
>
> David W9HQ
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459. Re: [w1ghz-transverter-builders] Preamp before or after the filter?

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-03 22:29:16 UTC
From: Ace Pilot
Topic: 455 Message: 459
Attachments: 1 described; binary payloads are missing from this source WARC

I concur. Preamp before filter.

N0EDV

On 7/3/2015 10:21 PM, James Duffey JamesDuffey@...
[w1ghz-transverter-builders] wrote:
>
> The order antenna --> preamp --> filter is usually preferable to
> antenna --> filter --> preamp because most filters have some loss and
> that loss adds directly to the noise figure. So unless the input
> filter is very low loss, it is usually preferable to have it after the
> preamp. This is probably most assuredly the case for your 1296 MHz
> filter.
>
> For terrestrial work at lower frequencies, like 6M or 2M one can
> usually get by with a higher noise figure, so the filter can be higher
> loss and in front of the preamp. If the preamp device is a robust
> device and doesn?t introduce much IMD, the filter will serve the same
> function before and after and protect the radio front end from IMD. -
> Duffey KK6MC
>
>
>
> On Jul 3, 2015, at 3:58 PM, thepalmhq@...
> <mailto:thepalmhq@...> [w1ghz-transverter-builders]
> <w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>> wrote:
>
>> I feel like I've already asked this question before, but I have
>> searched and cannot find it. So I'm going to ask again.
>>
>> I'm wondering if the order antenna --> preamp --> filter is
>> preferable to antenna --> filter --> preamp and, if so, why exactly?
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>> I have a nice interdigital filter for 1296 MHz that is robust enough
>> to transmit at least modest power through, so from a system
>> architecture standpoint it's easier to have the antenna run directly
>> into the filter, the output of the filter into the W1GHZ rx/tx relay
>> board and then preamp -->transverter on the receive side and power
>> amplifier --> transverter on the transmit side. Basically it would
>> let me use the single filter for both transmitting and receiving.
>>
>> But I don't want to do it if it's not a good option. Are there
>> concrete downsides to have the filter connected directly to the

>> antenna, then the rx/tx switch, then the receive preamp?
>>
>> 73,
>>
>> David W9HQ
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>

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460. low COST RELAYS ON the preamp by gm8sek

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-10 15:42:29 UTC
From: jonathan white
Topic: 460 Message: 460

hi gang. my question is can i use the relay switching arrangements,that GM4SEK has used,
i cant afford proper relaysdue to my living on handouts due to brain damage. so i got to make do.
ANDyes i know this is for microwaves ,did 10gigs in 1972 little klystron and a gun diode we got across 2 fields. belonged to a school i worked ar,
does anyone remeber Bert G8AAA, worked at dolis hull, and another member who was researching microwave weather on a RAF base and arranged abt100 poles with thermocouples at set distances up them and the analogy was of a pan of water warming to boiling and bubbles forming and escaping .this is what contributed to troppo and maybe E proppergation all this in1969 at a club meeting well known by RSGB
SORRY for rambling.
jonG8CCL

461. Low cost

Yahoo group: w1ghz-transverter-builders
Date: 2015-07-16 19:24:23 UTC
From: thepalmhq@...
Topic: 461 Message: 461

A vendor on EBay has the 18 watt MHW820-3 RF amp modules for an excellent price right now. These are Class C and I don't know how "crunchy" they would sound if trying to do SSB with them. But the price is certainly attractive and it looks like he has quite a few of them:

http://www.ebay.com/itm/321465402488 http://www.ebay.com/itm/321465402488

462. Looking to purchase a 144 MHz Temwell Filter

Yahoo group: w1ghz-transverter-builders
Date: 2016-03-19 21:32:16 UTC
From: the_grinners@...
Topic: 462 Message: 462

Good Morning,
I was wondering if there were any surplus 144 MHz Temwell filters out there,
I am looking to to build the miniverter if i can get the parts.

Thanks Ross ZL3DC

463. Chattering relay on transmit, how to solve it?

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-10 13:54:07 UTC
From: thepalmhq@...
Topic: 463 Message: 463

I was "this close" to having my W1GHZ 900 MHz transverter all working on receive and transmit, but when I added a small amplifier module on the output to get up to a couple of hundred mW, the transmit/receive relay started to chatter on transmit. I had already spent all of the spare time on it that I could afford at the time, so in discouragement I set it aside again. If I could get over that hump, I could probably have one of these on the air.

So what's the deal? How best to try and address this?

Thanks and 73,

David W9HQ

464. Re: [w1ghz-transverter-builders] Chattering relay on transmit, how to solve it?

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-10 14:07:38 UTC
From: Zack Widup
Topic: 463 Message: 464

Hi David,

What kind of relay are you using? What voltage does it require? If it's one of the ubiquitous 24 volt SMA relays, how are you supplying the voltage to it?

I am guessing there is not enough current going to the relay. Either that or some RF is somehow getting into the relay driver circuit. I have a hard time imagining a couple hundred mW will do that, though.

I have a circuit I have built many of that uses an LT1072 chip to double 12 volts to 24 volts for these relays. More recently I bought a bunch of little adjustable DC-DC converter boards on eBay. They were only about a dollar apiece and work quite well. I haven't had this problem running an amp that puts out 10 watts on 902.

73, Zack W9SZ

On Fri, Jun 10, 2016 at 8:54 AM, thepalmhq@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> I was "this close" to having my W1GHZ 900 MHz transverter all working on
> receive and transmit, but when I added a small amplifier module on the
> output to get up to a couple of hundred mW, the transmit/receive relay
> started to chatter on transmit. I had already spent all of the spare time
> on it that I could afford at the time, so in discouragement I set it aside
> again. If I could get over that hump, I could probably have one of these
> on the air.
>
> So what's the deal? How best to try and address this?
>
> Thanks and 73,
>
> David W9HQ
>
>
>
>

465. Re: Chattering relay on transmit, how to solve it?

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-10 14:16:25 UTC
From: thepalmhq@...
Topic: 463 Message: 465

I'm actually using one of Paul's little relay boards, so it requires 12 VDC to switch. It's powered off of the same supply as the rest of the transverter.

The whole thing really surprised me and, as I mentioned, discouraged me since I thought I was at the very end of getting the transverter on the air, finally, then this stupid thing happened and I just ran out of time. But I should try to tackle it again.

73,

David W9HQ

466. Re: [w1ghz-transverter-builders] Re: Chattering relay on transmit, how to solve it?

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-10 14:44:36 UTC
From: Zack Widup
Topic: 463 Message: 466

Oh yeah. I don't like that circuit. I used them for a while. Some 24v relays will remain closed at 12v and some won't. It doesn't take much to cause the relay to open.

You would be better off getting some of those little DC-DC inverters. Here's an example:

http://www.ebay.com/itm/2PCS-DC-DC-2A-Adjustable-Step-Up-Boost-Power-Supply-Converter-Module-N108-/401096005778?hash=item5d632f5892:g:laYAAOSw9N1VlfoK

73, Zack W9SZ

On Fri, Jun 10, 2016 at 9:16 AM, thepalmhq@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> I'm actually using one of Paul's little relay boards, so it requires 12
> VDC to switch. It's powered off of the same supply as the rest of the
> transverter.
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> The whole thing really surprised me and, as I mentioned, discouraged me
> since I thought I was at the very end of getting the transverter on the
> air, finally, then this stupid thing happened and I just ran out of time.
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> 73,
>
> David W9HQ
>
>

467. Re: [w1ghz-transverter-builders] Re: Chattering relay on transmit, how to solve it?

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-10 21:30:27 UTC
From: Ace Pilot
Topic: 463 Message: 467
Attachments: 1 described; binary payloads are missing from this source WARC

It's a 12V relay on the board, so it should work fine as long as your supply voltage is 12V. Maybe running on a battery and the battery boltage drops to 9V or something during TX? If it IS RF causing the problem, try putting a capacitor, maybe 20 to 100 pF from the base to ground on that transistor that drives the relay to bypass any RF to ground at the base of the tranny...

N0EDV

On 6/10/2016 2:44 PM, Zack Widup w9sz.zack@...
[w1ghz-transverter-builders] wrote:
> Oh yeah. I don't like that circuit. I used them for a while. Some 24v
> relays will remain closed at 12v and some won't. It doesn't take much
> to cause the relay to open.
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> You would be better off getting some of those little DC-DC inverters.
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> http://www.ebay.com/itm/2PCS-DC-DC-2A-Adjustable-Step-Up-Boost-Power-Supply-Converter-Module-N108-/401096005778?hash=item5d632f5892:g:laYAAOSw9N1VlfoK
>
> 73, Zack W9SZ
>
>
> On Fri, Jun 10, 2016 at 9:16 AM, thepalmhq@...
> <mailto:thepalmhq@...> [w1ghz-transverter-builders]
> <w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>> wrote:
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> I'm actually using one of Paul's little relay boards, so it
> requires 12 VDC to switch. It's powered off of the same supply as
> the rest of the transverter.
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> The whole thing really surprised me and, as I mentioned,
> discouraged me since I thought I was at the very end of getting
> the transverter on the air, finally, then this stupid thing
> happened and I just ran out of time. But I should try to tackle
> it again.
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> 73,
>
> David W9HQ
>

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468. Re: [w1ghz-transverter-builders] Re: Chattering relay on transmit, how to solve it? [1 Attachment]

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-10 23:38:01 UTC
From: Zack Widup
Topic: 463 Message: 468
Attachments: 1 described; binary payloads are missing from this source WARC

I think it's a 24 or 28 volt relay and one of those circuits that uses a capacitor charged to 12 volts momentarily put in series with the supply to put 24 volts onto the relay to latch it. Then the voltage across the relay drops to 12 volts. I've had mixed results with the circuit. Some relays don't stay latched at 12 volts.

73, Zack W9SZ

On Fri, Jun 10, 2016 at 4:30 PM, Ace Pilot acepilot@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> It's a 12V relay on the board, so it should work fine as long as your
> supply voltage is 12V. Maybe running on a battery and the battery boltage
> drops to 9V or something during TX? If it IS RF causing the problem, try
> putting a capacitor, maybe 20 to 100 pF from the base to ground on that
> transistor that drives the relay to bypass any RF to ground at the base of
> the tranny...
>
> N0EDV
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>
>
> On 6/10/2016 2:44 PM, Zack Widup w9sz.zack@...
> [w1ghz-transverter-builders] wrote:
>
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> relays will remain closed at 12v and some won't. It doesn't take much to
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> You would be better off getting some of those little DC-DC inverters.
> Here's an example:
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> http://www.ebay.com/itm/2PCS-DC-DC-2A-Adjustable-Step-Up-Boost-Power-Supply-Converter-Module-N108-/401096005778?hash=item5d632f5892:g:laYAAOSw9N1VlfoK
>
> 73, Zack W9SZ
>
>

> On Fri, Jun 10, 2016 at 9:16 AM, thepalmhq@gmail.com
> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
> wrote:
>
>>
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>> I'm actually using one of Paul's little relay boards, so it requires 12
>> VDC to switch. It's powered off of the same supply as the rest of the
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>> air, finally, then this stupid thing happened and I just ran out of time.
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>> David W9HQ
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469. Re: [w1ghz-transverter-builders] Re: Chattering relay on transmit, how to solve it?

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-11 03:18:35 UTC
From: Ace Pilot
Topic: 463 Message: 469
Attachments: 2 described; binary payloads are missing from this source WARC

He said it's the W1GHZ relay board...I don't recall Paul using a 24V relay in any of his stuff. It's just a plastic relay like a G5V or such. Pretty sure it's supposed to be a 12V coil. Sounds like you are referring to the DEMI stuff and their voltage double circuit for SMA 24V relays???

On 6/10/2016 11:38 PM, Zack Widup w9sz.zack@... [w1ghz-transverter-builders] wrote:

> I think it's a 24 or 28 volt relay and one of those circuits that uses
> a capacitor charged to 12 volts momentarily put in series with the
> supply to put 24 volts onto the relay to latch it. Then the voltage
> across the relay drops to 12 volts. I've had mixed results with the
> circuit. Some relays don't stay latched at 12 volts.
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> 73, Zack W9SZ
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>
> On Fri, Jun 10, 2016 at 4:30 PM, Ace Pilot acepilot@...
> <mailto:acepilot@...> [w1ghz-transverter-builders]
> <w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>> wrote:
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> It's a 12V relay on the board, so it should work fine as long as
> your supply voltage is 12V. Maybe running on a battery and the
> battery boltage drops to 9V or something during TX? If it IS RF
> causing the problem, try putting a capacitor, maybe 20 to 100 pF
> from the base to ground on that transistor that drives the relay
> to bypass any RF to ground at the base of the tranny...
>
> N0EDV
>
>
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> On 6/10/2016 2:44 PM, Zack Widup w9sz.zack@...
> <mailto:w9sz.zack@...> [w1ghz-transverter-builders] wrote:
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>> Oh yeah. I don't like that circuit. I used them for a while. Some
>> 24v relays will remain closed at 12v and some won't. It doesn't
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>> 73, Zack W9SZ
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>> On Fri, Jun 10, 2016 at 9:16 AM, thepalmhq@...
>> <mailto:thepalmhq@...> [w1ghz-transverter-builders]
>> <w1ghz-transverter-builders@yahoogroups.com
>> <mailto:w1ghz-transverter-builders@yahoogroups.com>> wrote:
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>> discouraged me since I thought I was at the very end of
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>> David W9HQ
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470. Re: [w1ghz-transverter-builders] Re: Chattering relay on transmit, how to solve it? [1 Attachment]

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-11 05:06:27 UTC
From: Zack Widup
Topic: 463 Message: 470
Attachments: 2 described; binary payloads are missing from this source WARC

Yes, maybe I misunderstood. I haven't used the W1GHZ board but I see it uses a BS170. If it gets any RF at all in it, it could be trouble. I would put that in a shielded box with bypassed input and output..

73, Zack W9SZ

On Fri, Jun 10, 2016 at 10:18 PM, Ace Pilot acepilot@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> He said it's the W1GHZ relay board...I don't recall Paul using a 24V relay
> in any of his stuff. It's just a plastic relay like a G5V or such. Pretty
> sure it's supposed to be a 12V coil. Sounds like you are referring to the
> DEMI stuff and their voltage double circuit for SMA 24V relays???
>
>
>
>
> On 6/10/2016 11:38 PM, Zack Widup w9sz.zack@...
> [w1ghz-transverter-builders] wrote:
>
>
> I think it's a 24 or 28 volt relay and one of those circuits that uses a
> capacitor charged to 12 volts momentarily put in series with the supply to
> put 24 volts onto the relay to latch it. Then the voltage across the relay
> drops to 12 volts. I've had mixed results with the circuit. Some relays
> don't stay latched at 12 volts.
>
> 73, Zack W9SZ
>
>
> On Fri, Jun 10, 2016 at 4:30 PM, Ace Pilot acepilot@bloomer.net
> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
> wrote:
>
>>
>>
>> It's a 12V relay on the board, so it should work fine as long as your
>> supply voltage is 12V. Maybe running on a battery and the battery boltage
>> drops to 9V or something during TX? If it IS RF causing the problem, try
>> putting a capacitor, maybe 20 to 100 pF from the base to ground on that

>> transistor that drives the relay to bypass any RF to ground at the base of
>> the tranny...
>>
>> N0EDV
>>
>>
>>
>> On 6/10/2016 2:44 PM, Zack Widup w9sz.zack@...
>> [w1ghz-transverter-builders] wrote:
>>
>>
>> Oh yeah. I don't like that circuit. I used them for a while. Some 24v
>> relays will remain closed at 12v and some won't. It doesn't take much to
>> cause the relay to open.
>>
>> You would be better off getting some of those little DC-DC inverters.
>> Here's an example:
>>
>>
>> http://www.ebay.com/itm/2PCS-DC-DC-2A-Adjustable-Step-Up-Boost-Power-Supply-Converter-M
odule-N108-/401096005778?hash=item5d632f5892:g:laYAAOSw9N1VlfoK
>>
>> 73, Zack W9SZ
>>
>>
>> On Fri, Jun 10, 2016 at 9:16 AM, thepalmhq@...
>> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
>> wrote:
>>
>>>>
>>>>
>>> I'm actually using one of Paul's little relay boards, so it requires 12
>>> VDC to switch. It's powered off of the same supply as the rest of the
>>> transverter.
>>>
>>> The whole thing really surprised me and, as I mentioned, discouraged me
>>> since I thought I was at the very end of getting the transverter on the
>>> air, finally, then this stupid thing happened and I just ran out of time.
>>> But I should try to tackle it again.
>>>
>>> 73,
>>>
>>> David W9HQ
>>>
>>
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>> --
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> --
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471. Re: [w1ghz-transverter-builders] Re: Chattering relay on transmit, how to solve it?

Yahoo group: w1ghz-transverter-builders
Date: 2016-06-19 22:51:19 UTC
From: David Palm
Topic: 463 Message: 471
Attachments: 2 described; binary payloads are missing from this source WARC

Thanks for the good feedback. I am inspired to try this again. Would live to have an extra band for the UHF contest. I'll let you know how it works out.

73 de W9HQ
On Jun 11, 2016 12:06 AM, "Zack Widup w9sz.zack@... [w1ghz-transverter-builders]" <w1ghz-transverter-builders@yahoogroups.com> wrote:

Yes, maybe I misunderstood. I haven't used the W1GHZ board but I see it uses a BS170. If it gets any RF at all in it, it could be trouble. I would put that in a shielded box with bypassed input and output..

73, Zack W9SZ

On Fri, Jun 10, 2016 at 10:18 PM, Ace Pilot acepilot@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> He said it's the W1GHZ relay board...I don't recall Paul using a 24V relay
> in any of his stuff. It's just a plastic relay like a G5V or such. Pretty
> sure it's supposed to be a 12V coil. Sounds like you are referring to the
> DEMI stuff and their voltage double circuit for SMA 24V relays???
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> On 6/10/2016 11:38 PM, Zack Widup w9sz.zack@...
> [w1ghz-transverter-builders] wrote:
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>
> I think it's a 24 or 28 volt relay and one of those circuits that uses a
> capacitor charged to 12 volts momentarily put in series with the supply to
> put 24 volts onto the relay to latch it. Then the voltage across the relay
> drops to 12 volts. I've had mixed results with the circuit. Some relays
> don't stay latched at 12 volts.
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> 73, Zack W9SZ
>
>
> On Fri, Jun 10, 2016 at 4:30 PM, Ace Pilot acepilot@...
> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>

> wrote:
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>>
>> It's a 12V relay on the board, so it should work fine as long as your
>> supply voltage is 12V. Maybe running on a battery and the battery boltage
>> drops to 9V or something during TX? If it IS RF causing the problem, try
>> putting a capacitor, maybe 20 to 100 pF from the base to ground on that
>> transistor that drives the relay to bypass any RF to ground at the base of
>> the tranny...
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>> On 6/10/2016 2:44 PM, Zack Widup w9sz.zack@...
>> [w1ghz-transverter-builders] wrote:
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>> Here's an example:
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>> http://www.ebay.com/itm/2PCS-DC-DC-2A-Adjustable-Step-Up-Boost-Power-Supply-Converter-M
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>>
>> 73, Zack W9SZ
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>> On Fri, Jun 10, 2016 at 9:16 AM, thepalmhq@...
>> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
>> wrote:
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>>> I'm actually using one of Paul's little relay boards, so it requires 12
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>>> since I thought I was at the very end of getting the transverter on the
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>>> But I should try to tackle it again.
>>>
>>> 73,
>>>

>>> David W9HQ
>>>
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472. 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-19 18:26:20 UTC
From: thepalmhq@...
Topic: 472 Message: 472

I have taken my 902 MHz transverter in hand yet again, to drive it to completion. Most recently I've been measuring the losses in the receive path and my results are puzzling.

Unfortunately, I did not do any measurements with the resistive splitter that's in Paul's original design. I immediately put in the PIN diode modification as outlined here https://xa.yimg.com/df/w1ghz-transverter-builders/W1GHZ+PIN+Diode+Modification.JPG?token=pok7rf2KKpmJaCTDiEBolM-O8vQb05Ju_nJzTWfEB0W2SP00kawgJOrRgq46BE08rfepGTdWvtYmvSUBF3fPY16_d-q_mxZKZJ9yh-obPzi_ofNcfdTRL8Bsm1FvIe4qH_Bm3zw&type=download. That's too bad, because now I would really like to be able to compare the results.

Anyway, when I inject a -53 dBm 902 MHz signal on the RX port I'm seeing -48.7 dBm of 146 MHz out on the IF port. I measured the gain of the receive MMIC (an SGA-3586 in my case) at 22.4 dB (a little lower than spec -- not sure why.) So I have a path gain of about 4.3 dB. That means losses of about 18 dB.

In one of his articles on these transverters Paul says that 18 dB of loss is what one would expect. But that's with the resistive splitter, which would be 6 dB in the ideal case -- so say 4.5 dB in the filter, 7 dB in the mixer, 6 dB in the splitter, and 0.5 dB to kick around. So I'm either not getting any benefit whatsoever from the PIN diode modification, or I have 6-7 dB of losses somewhere else. But where? Any ideas of where to look and how?

473. Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-21 04:49:55 UTC
From: Joe
Topic: 472 Message: 473

My 900 transverter is using the resistor splitter and the SGA3586Z. My measurements back in Feb of 2010 was that I would get 20dB of quieting with 0.3 uV input using an FM receiver. This seemed good enough to me. The transmit gain was -5 dBm in 20.89 mW out (18.2 dB). Saturated at 41 mW with +1 dBm drive.

Joe WB8DNO

474. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-21 14:24:54 UTC
From: Ethan Miller K8GU
Topic: 472 Message: 474

David and Joe,

I couldn't lay my hands on my RX measurements this morning, but I do have the following TX measurements on my blog to compare with Joe's, which seems to be a lot hotter on TX than mine. Do you have another amplification stage in there?

http://www.k8gu.com/?p=1165

Here are my (brief) notes on the construction and modification on my copy as well:

http://www.k8gu.com/?p=644

After the September VHF contest and 2-meter Fall Sprint, I'm sort of in the mood to work on these transverters again myself. Mine are to the stage of working on the bench but I've never attempted to make an actual QSO with them. Fortunately, K1RZ and ND3F are line-of-sight to me so I can probably do it without a PA even.

73,

--Ethan, K8GU/3.

On Wed, Sep 21, 2016 at 5:49 AM, Joe jhops@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

> My 900 transverter is using the resistor splitter and the SGA3586Z. My
> measurements back in Feb of 2010 was that I would get 20dB of quieting
> with 0.3 uV input using an FM receiver. This seemed good enough to me.
> The transmit gain was -5 dBm in 20.89 mW out (18.2 dB). Saturated at 41
> mW with +1 dBm drive.
>
> Joe WB8DNO
>
>
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> ------------------------------------
> Posted by: Joe <jhops@...>
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> Yahoo Groups Links
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475. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-21 15:18:26 UTC
From: Zack Widup
Topic: 472 Message: 475

I used the recommended MMIC's and did the PIN diode modification. I believe I was able to get +15 dBm or so out on transmit at 1 dB compression. That goes into a helical filter for 902 MHz, which has about a 4 dB loss. But I didn't need +10 dBm on transmit. I have a 902 MHz Mitsubishi power module that someone sold me. It's an obscure part (not commonly available in the USA) that puts out 10 watts for 1 mW input. So I put an attenuator in line with the transmit output of the transverter board.

I did something similar on 1296. I used a Mitsubishi power module that produces 1.5 watts output driving one that puts out 15 watts. I forget the part numbers of the modules but I only needed a few dBm to drive it to 10 watts.

My receive preamps are the WD5AGO/W5LUA preamp using an ATF36077 followed by an MGA61563. They have something like +36 dB gain and 0.8 dB noise figure. Tommy WD5AGO sells the boards for these for something like $5 apiece.

I did not use the clock module for an LO with either. I used a circuit that is a voltage-tuned crystal oscillator phase-locked to a 10 MHz high-accuracy, high-stability OCXO.

I've been using both of these transverters (902 and 1296) for a couple years. They are both excellent performers. I have had many QSO's with both.

73, Zack W9SZ

On Wed, Sep 21, 2016 at 9:24 AM, Ethan Miller K8GU ethan@k8gu.com [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> David and Joe,
>
> I couldn't lay my hands on my RX measurements this morning, but I do
> have the following TX measurements on my blog to compare with Joe's,
> which seems to be a lot hotter on TX than mine. Do you have another
> amplification stage in there?
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> http://www.k8gu.com/?p=1165
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> Here are my (brief) notes on the construction and modification on my
> copy as well:
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> After the September VHF contest and 2-meter Fall Sprint, I'm sort of
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> the stage of working on the bench but I've never attempted to make an
> actual QSO with them. Fortunately, K1RZ and ND3F are line-of-sight to
> me so I can probably do it without a PA even.
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> 73,
>
> --Ethan, K8GU/3.
>
> On Wed, Sep 21, 2016 at 5:49 AM, Joe jhops@...
> [w1ghz-transverter-builders]
> <w1ghz-transverter-builders@yahoogroups.com> wrote:
> > My 900 transverter is using the resistor splitter and the SGA3586Z. My
> > measurements back in Feb of 2010 was that I would get 20dB of quieting
> > with 0.3 uV input using an FM receiver. This seemed good enough to me.
> > The transmit gain was -5 dBm in 20.89 mW out (18.2 dB). Saturated at 41
> > mW with +1 dBm drive.
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> > Joe WB8DNO
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> > ------------------------------------
> > Posted by: Joe <jhops@...>
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476. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-22 14:12:16 UTC
From: thepalmhq@...
Topic: 472 Message: 476

Thanks for all the replies. If anybody has the resistive splitter installed on the 902 or 1296 board and can measure the receive path gain I'd love to see that number as a point of comparison. As it stands, I'm still puzzled about my missing 7 dB -- I really thought the PIN diode modification should have performed better than this. My friend KF9OP suggested there may be an impedance mismatch somewhere. I just don't know.

The thing that keeps drawing me back to the W1GHZ transverters is how much I learn as I build them. I've been doing a lot of reading and have found some things that may be of value to this group.

Related to Zack's description of his preamp set-up, I'm planning on using a PGA-103 https://www.minicircuits.com/pdfs/PGA-103+.pdf stage per W1GHZ's article "Simple Cheap MMIC Preamps". I'm getting 15.4 dB of gain out of the PGA-103 at 900 MHz and like Paul, I just mounted mine in an Altoids Smalls tin last night -- per the spec sheet that should give a 0.6 dB noise figure. That low noise preamp will run into a 902 MHz helical filter, then a second stage of gain which I haven't quite settled yet -- probably an ADL5601 for another 15 dB of gain, then into the RX port on the transverter board. You all probably knew this already, but I have learned that getting that low noise preamp up front really dominates the noise figure of the whole chain of amplifiers. You can play with these numbers using this tool: Cascaded Noise Figure Calculator http://www.everythingrf.com/rf-calculators/cascaded-noise-figure-gain-calculator.

Zach recommended the LNA from WD5AGO. I haven't found a link to that PCB -- maybe Zach can provide us with one. For the PGA-103 part you can buy cheap PCBs for the SOT-89 packages from either "rfextra http://stores.ebay.com/RF-Basic-Store?_trksid=p2047675.l2563" on EBay or from WA5VJB http://www.wa5vjb.com/products8.html off his site. I personally prefer the PCBs from "rfextra" since they have a place for the voltage regulator right on the board. On the other hand, WA5VJB's boards have pads to stuff a little bandpass filter, so that's kind of nice.

In a sense it feels like "cheating" to have to put in these additional stages on the W1GHZ transverters, but we're talking just a few dollars for what promises to be a pretty large performance improvement on receive.

Now that we're talking about adding one or more stages of gain ahead of the W1GHZ board, I'll follow up with what I've found on the broader question: how much gain should the receive path have in a good transverter system?

477. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-24 22:09:16 UTC
From: adam9a4qv@...
Topic: 472 Message: 477

You can always put a bridge instead of PIN diode just to measure conversion gain. Then you can see the difference and how good/bad the PIN diode is switching. Just to find out where your dBs are gone....

Be careful with the PGA-103. Most of designs are quite wrong. Consult the datasheet and take care about input stabilization network. Also the bias inductance is very important and follow the datasheet about that too.
This MMIC is not stable bellow 150Mhz and if your IF reach the PGA-103 all sort of things may happen.

478. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-27 15:17:36 UTC
From: Ethan Miller K8GU
Topic: 472 Message: 478

David,

I re-measured mine this morning and found that I had a conversion gain of -21 dB with the active stages! This may explain why I couldn't lay my hands on the previous measurements!

However, I did not put the LO MMIC in mine and the LO output is around -6 dBm. So, I'm going to have to rework it with ~12 dB of gain or so. I don't have a lot of first-hand experience with this sort of thing, but Pozar succinctly writes "One factor that strongly affects the conversion loss of a mixer is the local oscillator signal (or pump) power level; ..." Even if the conversion gain was linear with the LO drive, I would be up to -9 dB, so I suspect this will get me most of the way there, if not all.

At any rate, I will disassemble it some evening this week and put the gain stage in for the LO, then re-measure.

73,

--Ethan, K8GU/3.

On Sat, Sep 24, 2016 at 11:09 PM, adam9a4qv@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> You can always put a bridge instead of PIN diode just to measure
> conversion gain. Then you can see the difference and how good/bad the PIN
> diode is switching. Just to find out where your dBs are gone....
>
> Be careful with the PGA-103. Most of designs are quite wrong. Consult the
> datasheet and take care about input stabilization network. Also the bias
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> This MMIC is not stable bellow 150Mhz and if your IF reach the PGA-103 all
> sort of things may happen.
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>

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479. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-27 19:40:38 UTC
From: adam9a4qv@...
Topic: 472 Message: 479

Ethan, -6dB is not sufficient power to switch in the mixer. The minimum for ADE-5 is like +4dBm. I think I measure down to 0dBm but the losses are too big.

It is better to have 1 dBm more for the LO then 1dBm less :-)

So if you start to count the losses: 7db in the mixer + 6dB in the resistor splitter + 6dB in the filter you are reaching 19dB of loss.

If you have INA10386 at the input you can get some 26.8dB of the gain at 900 MHz resulting 7.8dB of the conversion gain.

Adam

480. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-29 18:34:30 UTC
From: thepalmhq@...
Topic: 472 Message: 480

OK, I have some more results to report.

First, I did some fiddling with my LO, since I was only getting just shy of 3 dBm to the mixer. I brought that up by 4 dBm, so just shy of 7 dBm into the mixer and for now I'm going to call that good enough.

Next, I rechecked the receive gain with the new LO level and it hadn't changed -- I'm still getting ~ +4 dB of gain from receive port to IF port, so still losing about 7 dB somewhere.

Next, I pulled off the PIN diode and bridged that path, per Adam's suggestion (why didn't I think of that?) Same result, plus or minus a few tenths of a dB. So my loss is not in the PIN diode -- that's good! At this point I think I'm just going to shrug and move on. Gain is cheap and I want to get this thing on the air!

So, finally, I put the PIN diode back in place and connected my LNA, followed by a helical filter. With that system I'm getting +15.1 dB of gain in the receive path, with a calculated noise figure of 1.25 dB. I have another LNA stage, an ADL5601 with another 15 dB of gain, which I will add in the final system. Then my receive path will be finished.

Time to start cracking on the transmit, getting the interface and relay switching working for a 40 watt amp.

I did look at the IF output on a spectrum analyzer. Everything is pretty well knocked down except for the 756 MHz LO which is at -27 dBm, which is 34 dB down from the LO input to the mixer, then the (LO - RF) spike at 610 MHz which is another 15 dB down at -42 dBm. I presume the LO leakage is normal, since it's pretty much exactly the spec on the ADE-5 spec sheet. And since there's no filtering after the mixer I presume some output on (LO - RF) is pretty normal as well. Do these spikes cause any difficulties? Does anybody ever put a low pass filter on the output of the mixer to kill these off?

73,

David W9HQ

481. Re: [w1ghz-transverter-builders] Re: 902 MHz Receive Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-29 19:44:42 UTC
From: adam9a4qv@...
Topic: 472 Message: 481

David, no problems with the mixer products on the IF side. You IF radio has the bandpass filter and this should solve all the IF problems.

482. LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-30 16:16:42 UTC
From: thepalmhq@...
Topic: 482 Message: 482

A number of hams have reported that a weakness of the W1GHZ transverter design is that it tends to be a bit deaf on receive. One easy way to overcome this is with an LNA in front of the receive port.

I thought I would start a separate thread to discuss cheap and easy LNAs one can add to the basic transverter. While there are lots of very expensive LNAs out there, it seems that there are a number of inexpensive options that can significantly boost performance while staying in keeping with the "gain is cheap" design philosophy. Here are a few that have been discussed already on other threads:

Zach, W9SZ, is using the two-stage LNA from WD5AGO, featuring an ATF36077 followed by an MGA61563 for about 35-37 dB of gain. You can read more about the design here http://www.ntms.org/eme/presentations/w5lua/WD5AGO_9cm%20and%2013cm%20LNA%20Dallas.pdf. WD5AGO indicated to me that he's selling PCBs for this design for $10 and you can contact him at <his call sign @ hotmail.com>. Zach indicates that this LNA has performed well for him on 902 and 1296 MHz. The MGA61563 is easy to find and pretty cheap, but the ATF36077 looks to be a little difficult to find.
W1GHZ and WA5VJB have done a lot of work with the PGA-103+ (see here and here.) Both of them have PCBs available, as does "rfextra http://www.ebay.com/itm/Develop-PCB-for-RF-MMIC-Amp-with-SOT-89-Package-Qty-4-/400080328667?hash=item5d26a557db:m:m1BO_XevPB_ORAuigq1IiuQ " on EBay. A potential trouble with this part is that Minicircuits has a 20 part minimum. (9A4QV indicates too that there may be some stability problems in the VHF range, so keeping the IF frequency out of the LNA is important.) I bought a few of these a while ago from a guy on EBay who was selling them in small quantities, but that source seems to have dried up. It looks like WA5VJB may be selling complete kits soon, though.
W6PQL has an LNA design based on the Avago
http://www.w6pql.com/l_%26_s_band_lna.htmATF-54143
http://www.w6pql.com/l_%26_s_band_lna.htm. It has excellent gain and NF specs at least for 902 and 1296 -- it's okay at 2304, but W6PQL has told me that he's gotten feedback that it doesn't perform very well at 3456, at least using the build-specs he has on his page. Jim sells PCBs and the Avago parts are readily available and inexpensive.
And a member of this forum, Adam, 9A4QV, has an all-purpose LNA for sale that fits into this niche nicely as well. His design is based on the PSA4-5043+ part, which has slightly better performance than the PGA-103+. One advantage of Adam's LNA is that it comes pre-built and is reasonably priced, so no ordering from multiple sources and ending up with more "stuff" than you actually need. You can read more about it at LNA 4 All http://lna4all.blogspot.com/. I'd like to ask Adam please to tell us about his hands-on experiences with his LNA and its effect on the receive performance of the W1GHZ transverters.

Any experiences on these or other designs? Please reply to this thread to keep all the answers together.

73, David W9HQ

483. Re: [w1ghz-transverter-builders] LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-30 21:07:13 UTC
From: gary rheuark
Topic: 482 Message: 483

Hello all. concerning the ATF36077, I have 10 NOS ATF36077s for sale at$8.00 each postage paid. If interested contact me at garyk5qnm at yahoo.com.I bought these units a few years back when I was looking at 9400 MHZ. Gary.

From: "thepalmhq@... [w1ghz-transverter-builders]"
<w1ghz-transverter-builders@yahoogroups.com>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Friday, September 30, 2016 11:16 AM
Subject: [w1ghz-transverter-builders] LNAs for the W1GHZ transverters

A number of hams have reported that a weakness of the W1GHZ transverter design is that it tends to be a bit deaf on receive. One easy way to overcome this is with an LNA in front of the receive port.

I thought I would start a separate thread to discuss cheap and easy LNAs one can add to the basic transverter. While there are lots of very expensive LNAs out there, it seems that there are a number of inexpensive options that can significantly boost performance while staying in keeping with the "gain is cheap" design philosophy. Here are a few that have been discussed already on other threads:

- Zach, W9SZ, is using the two-stage LNA from WD5AGO, featuring an ATF36077 followed by an MGA61563 for about 35-37 dB of gain. You can read more about the design here. WD5AGO indicated to me that he's selling PCBs for this design for $10 and you can contact him at <his call sign @ hotmail.com>. Zach indicates that this LNA has performed well for him on 902 and 1296 MHz. The MGA61563 is easy to find and pretty cheap, but the ATF36077 looks to be a little difficult to find.

- W1GHZ and WA5VJB have done a lot of work with the PGA-103+ (see here and here.) Both of them have PCBs available, as does "rfextra" on EBay. A potential trouble with this part is that Minicircuits has a 20 part minimum. (9A4QV indicates too that there may be some stability problems in the VHF range, so keeping the IF frequency out of the LNA is important.) I bought a few of these a while ago from a guy on EBay who was selling them in small quantities, but that source seems to have dried up. It looks like WA5VJB may be selling complete kits soon, though.

- W6PQL has an LNA design based on the Avago ATF-54143. It has excellent gain and NF specs at least for 902 and 1296 -- it's okay at 2304, but W6PQL has told me that he's gotten feedback that it doesn't perform very well at 3456, at least using the build-specs he has on his page. Jim sells PCBs and the Avago parts are readily available and inexpensive.

- And a member of this forum, Adam, 9A4QV, has an all-purpose LNA for sale that fits into this niche nicely as well. His design is based on the PSA4-5043+ part, which has slightly better performance than the PGA-103+. One advantage of Adam's LNA is that it comes pre-built and is reasonably priced, so no ordering from multiple sources and ending up with more "stuff" than you actually need. You can read more about it at LNA 4 All. I'd like to ask Adam please to tell us about his hands-on experiences with his LNA and its effect on the receive performance of the W1GHZ transverters.

Any experiences on these or other designs? Please reply to this thread to keep all the answers together.

73, David W9HQ

484. Re: [w1ghz-transverter-builders] LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-09-30 21:21:36 UTC
From: Zack Widup
Topic: 482 Message: 484

I believe Paul himself said the transverters needed a preamp if they were to be used for something more long-haul than short distance Rover QSO's. I have not actually measured the gain or NF of the WD5AGO preamps I have built, but I found that the 902 MHz preamp is just about right for the receive level I expect. I have a 902 preamp with 18 dB of gain and it falls short.

The 1296 MHz WD5AGO preamp I built has too much gain for the 1296 W1GHZ transverter. I had to knock it down a bit.

73, Zack W9SZ

On Fri, Sep 30, 2016 at 11:16 AM, thepalmhq@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> A number of hams have reported that a weakness of the W1GHZ transverter
> design is that it tends to be a bit deaf on receive. One easy way to
> overcome this is with an LNA in front of the receive port.
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> I thought I would start a separate thread to discuss cheap and easy LNAs
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> - Zach, W9SZ, is using the two-stage LNA from WD5AGO, featuring an
> ATF36077 followed by an MGA61563 for about 35-37 dB of gain. You can read
> more about the design here
>
<http://www.ntms.org/eme/presentations/w5lua/WD5AGO_9cm%20and%2013cm%20LNA%20Dallas.pdf>.
> WD5AGO indicated to me that he's selling PCBs for this design for $10 and
> you can contact him at <his call sign @ hotmail.com>. Zach indicates
> that this LNA has performed well for him on 902 and 1296 MHz. The MGA61563
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> difficult to find.
>
>
> - W1GHZ and WA5VJB have done a lot of work with the PGA-103+ (see here
> and here.) Both of them have PCBs available, as does "rfextra
> <http://www.ebay.com/itm/Develop-PCB-for-RF-MMIC-Amp-with-SOT-89-Package-Qty-4-/400080328667?hash=item5d26a557db:m:m1BO_XevPB_ORAuigq1IiuQ>"

> on EBay. A potential trouble with this part is that Minicircuits has a 20
> part minimum. (9A4QV indicates too that there may be some stability
> problems in the VHF range, so keeping the IF frequency out of the LNA is
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> selling them in small quantities, but that source seems to have dried up.
> It looks like WA5VJB may be selling complete kits soon, though.
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> <http://www.w6pql.com/l_%26_s_band_lna.htm>ATF-54143
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> One advantage of Adam's LNA is that it comes pre-built and is reasonably
> priced, so no ordering from multiple sources and ending up with more
> "stuff" than you actually need. You can read more about it at LNA 4
> All <http://lna4all.blogspot.com/>. I'd like to ask Adam please to
> tell us about his hands-on experiences with his LNA and its effect on the
> receive performance of the W1GHZ transverters.
>
>
> Any experiences on these or other designs? Please reply to this thread to
> keep all the answers together.
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>
> 73, David W9HQ
>
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>
>

485. Re: [w1ghz-transverter-builders] LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-03 18:31:33 UTC
From: thepalmhq@...
Topic: 482 Message: 485

Zach, you wrote,

"I found that the 902 MHz preamp is just about right for the receive level I expect. I have a 902 preamp with 18 dB of gain and it falls short. The 1296 MHz WD5AGO preamp I built has too much gain for the 1296 W1GHZ transverter. I had to knock it down a bit."

Here are a couple of questions for my education. How did you determine what receive level you expect? How did you measure that the 18 dB LNA fell short? How did you determine that the 1296 LNA had too much gain? And how did you "knock it down a bit"?

Thanks and 73,

David W9HQ

486. Re: [w1ghz-transverter-builders] LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-03 18:44:06 UTC
From: Zack Widup
Topic: 482 Message: 486

It was all by trial-and-error. I listened for a beacon on 902 and 1296 that's about 100 or so miles away from me (K9MOT/B). On 902, with the 18 dB preamp, I could barely hear the beacon, if at all. With the WD5AGO amp, I could hear the beacon at least S9 but the noise level was only about S2 or S3. This compared well with another 902 MHz transverter I had.

With the 1296 preamp, with no attenuation, the noise level in the receiver was 20 dB over 9, and overpowering the receiver. I put some attenuation into the output of the preamp, by trial and error, till the noise level came out to be around S2 or S3. Then the 1296 beacon was around S9 or so, similar to the 902 beacon.

Hopefully that helps you. If you have a known signal source on the band, adjust the preamp if possible so the noise is not overpowering the receiver and yet the signal can be heard well. I don't have a lot of test equipment to measure things like noise figure but both of these transverters perform very well now and seem to compare favorably on receive with what people at the other end with similar power levels to me report hearing at their end.

Also, my antennas are an 18 element loop Yagi on 902 and a 24 element loop Yagi on 1296.

73, Zack W9SZ

On Mon, Oct 3, 2016 at 1:31 PM, thepalmhq@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> Zach, you wrote,
>
> "I found that the 902 MHz preamp is just about right for the receive level
> I expect. I have a 902 preamp with 18 dB of gain and it falls short. The
> 1296 MHz WD5AGO preamp I built has too much gain for the 1296 W1GHZ
> transverter. I had to knock it down a bit."
>
> Here are a couple of questions for my education. How did you determine
> what receive level you expect? How did you measure that the 18 dB LNA fell
> short? How did you determine that the 1296 LNA had too much gain? And how
> did you "knock it down a bit"?
>
> Thanks and 73,
>
> David W9HQ
>

>

487. 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-04 14:04:13 UTC
From: thepalmhq@...
Topic: 487 Message: 487

I've recently discussed my results on the 902 MHz receive path, where I've got 7 or so dB of unaccounted-for losses. I tested my 902 MHz transmit path yesterday and got some puzzling results. With 0 dBm into the IF port I'm getting about 0 dB out of the MAR6, so we're talking 20 dB of losses. That means I'm seeing the same ~7 dB of mystery losses in the Tx path as I am in the Rx path. I checked the PIN diode and it's working fine, with only a couple of tenths of a dB of losses.

So what could account for similar losses on both Tx and Rx? I'm going to check my cabling and such for losses, but I don't expect to find 7 dB of losses there. The filter is shared by both, of course, and I'm going to check that, but I think it's unlikely to be the culprit.

More likely to me is the mixer. My LO has been rather wonky. I have the 756 MHz LO running into a helical filter and get ~3.5 dBm out of the filter. This means that the MAR6 on the LO board is honking out about 7+ dBm and, as we've discussed before, that is well past its 1 dB compression point. It just doesn't seem that the MAR6 is the correct part for the "final" on the LO board – something with a bit more headroom seems more appropriate.

Since I was only getting about 3 dBm out of the LO filter I put a MAR4 on the transverter board to boost that for the mixer. I expected to get too much LO (3 dBm + 8 dB of gain = 11 dBm expected), but in fact I was only getting about 4.5 dBm out of the MAR4, so only 1.5 dB of gain. Huh? I thought maybe I was overdriving it, so I put down a 4 dB attenuator pad just after the LO input port and I got.....4.5 dBm out. That’s better, but still an unexpected value. Something is weird. It makes me wonder if that overdriven MAR6 on the LO board is causing anomalous results.

At this point I'm going to take a step back and focus attention on the LO board itself. I'll measure the level right at the filter output and then probably replace the last amplifier stage with a MMIC that has a higher 1 dB compression point than the MAR6. I would prefer not to have an additional LO amplifier stage on the transverter board, but with the losses in the helical filter on the LO board I may not get away with that.

I’m hoping that with a solid 7+ dBm of mixer drive I’ll recover at least some part of my mystery losses on both Rx and Tx. Does this sound like a reasonable course of action?

73,

David W9HQ

488. Re: [w1ghz-transverter-builders] 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-04 14:18:49 UTC
From: Zack Widup
Topic: 487 Message: 488

Hmm ... notes below.

On Tue, Oct 4, 2016 at 9:04 AM, thepalmhq@...
[w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
wrote:

>
>
> I've recently discussed my results on the 902 MHz receive path, where I've
> got 7 or so dB of unaccounted-for losses. I tested my 902 MHz transmit
> path yesterday and got some puzzling results. With 0 dBm into the IF
> port I'm getting about 0 dB out of the MAR6, so we're talking 20 dB of
> losses. That means I'm seeing the same ~7 dB of mystery losses in the Tx
> path as I am in the Rx path. I checked the PIN diode and it's working fine,
> with only a couple of tenths of a dB of losses.
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>
> So what could account for similar losses on both Tx and Rx? I'm going to
> check my cabling and such for losses, but I don't expect to find 7 dB of
> losses there. The filter is shared by both, of course, and I'm going to
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> 756 MHz LO running into a helical filter and get ~3.5 dBm out of the filter.
> This means that the MAR6 on the LO board is honking out about 7+ dBm and,
> as we've discussed before, that is well past its 1 dB compression point. It
> just doesn't seem that the MAR6 is the correct part for the "final" on the
> LO board – something with a bit more headroom seems more appropriate.
>
>
>
My first thought would be the mixer. Do you know the LO drive level to the
mixer? The mixer specified by Paul wants +7 dBm. I wouldn't rule out a bad
mixer.

Also, I like to swap out MMIC's. You might want to replace the MAR-6 with
an ERA-5.

> Since I was only getting about 3 dBm out of the LO filter I put a MAR4 on
> the transverter board to boost that for the mixer. I expected to get too
> much LO (3 dBm + 8 dB of gain = 11 dBm expected), but in fact I was only
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> just after the LO input port and I got.....4.5 dBm out. That’s better,
> but still an unexpected value. Something is weird. It makes me wonder

> if that overdriven MAR6 on the LO board is causing anomalous results.
>
>
>
That's odd. Are your DC voltages to all these MMIC's correct?

My PLL LO circuit has an adjustable output. Typically between -5 and +15
dBm. But you can put in attenuators to get the value to where you want it.
I always say you can never have too many attenuators. :-) But that's not
your immediate problem.

73, Zack W9SZ

> At this point I'm going to take a step back and focus attention on the LO
> board itself. I'll measure the level right at the filter output and then
> probably replace the last amplifier stage with a MMIC that has a higher 1
> dB compression point than the MAR6. I would prefer not to have an
> additional LO amplifier stage on the transverter board, but with the losses
> in the helical filter on the LO board I may not get away with that.
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> I’m hoping that with a solid 7+ dBm of mixer drive I’ll recover at least
> some part of my mystery losses on both Rx and Tx. Does this sound like a
> reasonable course of action?
>
> 73,
>
> David W9HQ
>
>
>
>

489. Re: [w1ghz-transverter-builders] 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-04 22:10:50 UTC
From: thepalmhq@...
Topic: 487 Message: 489

Zach asked, " Do you know the LO drive level to the mixer?" I was typically measuring about 4.5 dBm into the mixer, but at this point I don't trust it because I've seen it as high as 7 dBm and yesterday it was all over the place as I tried various things that should have had only minimal effects.

I just yanked the MAR6 off the LO board and measured the output of the 756 MHz filter on the LO PCB at -4 dBm. This is way more than W1GHZ documents in his paper. No wonder that MAR 6 is unhappy.

I'm going to put down something with about 20 dB of gain but a 1 dBC point of, say, 18 or 20 dB. That'll make up for the 5 - 6 dB of losses in the helical filter, connectors, cabling, etc. and should leave me with around 10 dBm for the mixer, without the need for additional amplifier on the transverter board. If I need to cut that back I've already carved out a place for an attenuator pad.

I don't currently have a MMIC in an SOT-86 case that quite fits the bill. Rather than ordering something, I'm going to try tacking down an SOT-89 part in that spot. Anybody here ever try that? Seems like at 756 MHz there may be enough grounding for it (I hope.)

73,

David W9HQ

490. Re: [w1ghz-transverter-builders] 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-04 22:35:51 UTC
From: Dan Habecker
Topic: 487 Message: 490

David,

I've placed SOT-98's in those places before. I did some of this with my 1296MHz transverter. They work quite well.

73,
Dan W9EQ

On Tuesday, October 4, 2016, thepalmhq@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> Zach asked, " Do you know the LO drive level to the mixer?" I was
> typically measuring about 4.5 dBm into the mixer, but at this point I don't
> trust it because I've seen it as high as 7 dBm and yesterday it was all
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> David W9HQ
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491. Re: [w1ghz-transverter-builders] 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-04 23:33:53 UTC
From: Ace Pilot
Topic: 487 Message: 491
Attachments: 1 described; binary payloads are missing from this source WARC

I haven't looked at the circuit for a while and I'm too lazy right now to dig it out, but I've noticed low gain from all the MAR and ERA devices if there isn't a choke between the device and the bias resistor since the bias resistors are usually fairly low value such as 75 Ohm or 110 Ohm etc. At 700-900 MHz, I would add a coil wound over a 1/8 drill bit and about 8 turns (#24 or #22 magnet wire is fine) and see if you get more gain out of the devices. Take a look at the datasheets where they show the "optional" choke in the bias circuit.

N0EDV

On 10/4/2016 2:04 PM, thepalmhq@... [w1ghz-transverter-builders] wrote:
>
> I've recently discussed my results on the 902 MHz receive path, where
> I've got 7 or so dB of unaccounted-for losses. I tested my 902 MHz
> transmit path yesterday and got some puzzling results.With 0 dBm into
> the IF port I'm getting about 0 dB out of the MAR6, so we're talking
> 20 dB of losses. That means I'm seeing the same ~7 dB of mystery
> losses in the Tx path as I am in the Rx path. I checked the PIN diode
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> So what could account for similar losses on both Tx and Rx?I'm going
> to check my cabling and such for losses, but I don't expect to find 7
> dB of losses there. The filter is shared by both, of course, and I'm
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> 756 MHz LO running into a helical filter and get ~3.5 dBm out of the
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> attenuator pad just after the LO input port and I got.....4.5 dBm

> out.That’s better, but still an unexpected value.Something is weird.
> It makes me wonder if that overdriven MAR6 on the LO board is causing
> anomalous results.
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> LO board itself.I'll measure the level right at the filter output and
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> higher 1 dB compression point than the MAR6.I would prefer not to have
> an additional LO amplifier stage on the transverter board, but with
> the losses in the helical filter on the LO board I may not get away
> with that.
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> I’m hoping that with a solid 7+ dBm of mixer drive I’ll recover at
> least some part of my mystery losses on both Rx and Tx.Does this sound
> like a reasonable course of action?
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>
> 73,
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> David W9HQ
>
>
>

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492. Re: [w1ghz-transverter-builders] 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-05 18:28:38 UTC
From: adam9a4qv@...
Topic: 487 Message: 492

You have that already printed on the W1GHZ boards, so no need for extra bias coils.

Adam

493. Re: [w1ghz-transverter-builders] 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-05 21:28:09 UTC
From: Ace Pilot
Topic: 487 Message: 493
Attachments: 1 described; binary payloads are missing from this source WARC

OK...couldn't remember if there was tuned lines on them. Thanks!!

N0EDV

On 10/5/2016 6:28 PM, adam9a4qv@... [w1ghz-transverter-builders]
wrote:
>
> You have that already printed on the W1GHZ boards, so no need for
> extra bias coils.
>
> Adam
>
>

--

494. Re: [w1ghz-transverter-builders] 902 MHz Transmit Path Losses

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-10 18:03:34 UTC
From: thepalmhq@...
Topic: 487 Message: 494

Thanks for all the good feedback. Here's an update. I have tried everything I know to improve the path loss on Tx/Rx, to no avail. I got my LO drive to a stable 6 dBm at the mixer by a combination of changes on the LO board. I measured the PIN diode loss and that's a fraction of a dB. Today I tried the last big thing, I swapped out the mixer. Even with a new mixer, the combination of mixer/filter/PIN diode loss is still right around 18 dB. So there is some unaccounted-for loss somewhere, but I'm done looking for it. Gain is cheap and it's time to move on, which I did.

So also today I yanked the MAR6 and ERA5 out of the transmit path and put down a single SGA-4586 (I just bought a bunch of these and will be selling some to those who might be interested -- it's probably the best receiver front-end part for 902 and 1296 MHz, plus is just generally useful elsewhere.) That gives me about 5 dBm off the board, into a helical filter, which gives me 3 dBm of very clean RF on 902 MHz (the next highest spur is more than 50 dB down.) I'm going to drive an ADL5601 with that and use that ~18 dBm to drive an RA45H8994M1 module, for what should be about 50 watts out.

So the receive path is working. The transmit path is working. Next step is to trick out the enclosure with the needed RF and power connectors, get the Rx/Tx relay wired in and working, and then get on the air! Close, so close.....

73,

David W9HQ

495. How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-10 22:52:37 UTC
From: thepalmhq@...
Topic: 495 Message: 495

A matter that has puzzled me while learning about these microwave circuits is how the values of the capacitors in the RF path are selected?

Generally, of course, I see that as the frequency goes up the value of the blocking cap goes down. But what are the criteria being used to select the value?

W1GHZ generally uses 100 pF for the LO frequencies of 720/756 MHz, although on the 900 MHz board he has 100 pF on the LO input but then 18 pF after the LO amp and just before the mixer (it's the same frequency, so why the difference?) For anything 900 on up to 3456 MHz it seems he's sort of standardized on 18 pF.

But then other devices have wildly differing values. For example, the datasheet for the ADL5602 has recommended values of 0.1 uF (!) on both input and output, even though the part is rated from 50 MHz to 4 GHz. Would use at a specific frequency nudge one to a more optimized value? If so, how would that value be determined?

Can somebody give me an education or direct me to a source that would enlighten me on this point?

73,

David W9HQ

496. Re: [w1ghz-transverter-builders] How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-10 23:34:39 UTC
From: gary rheuark
Topic: 495 Message: 496

Hello David.....I have been to 18 GHZ and back with my designs.....
I do get reasonable power output and receiver sensitivity by using a crude rule of thumb: "Make the Xc equal 1/10th of the device input and output impedance".....
The devices I work with at 3450 MHZ are 50 Ohms in and out.....Therefore, I start with an Xc of 5 Ohms or some 10 PFD.....
They did not teach me this at OSU, this is my rule of thumb, learned the hard way.....
I will defer to and learn from the correct "legal" method of determining the capacitance value.....
Gary.....K5QNM.....Gainesville, Missouri.....Population 773.....

From: "thepalmhq@... [w1ghz-transverter-builders]"
<w1ghz-transverter-builders@yahoogroups.com>
To: w1ghz-transverter-builders@yahoogroups.com
Sent: Monday, October 10, 2016 5:52 PM
Subject: [w1ghz-transverter-builders] How to select blocking capacitor values?

A matter that has puzzled me while learning about these microwave circuits is how the values of the capacitors in the RF path are selected?

Generally, of course, I see that as the frequency goes up the value of the blocking cap goes down. But what are the criteria being used to select the value?

W1GHZ generally uses 100 pF for the LO frequencies of 720/756 MHz, although on the 900 MHz board he has 100 pF on the LO input but then 18 pF after the LO amp and just before the mixer (it's the same frequency, so why the difference?) For anything 900 on up to 3456 MHz it seems he's sort of standardized on 18 pF.

But then other devices have wildly differing values. For example, the datasheet for the ADL5602 has recommended values of 0.1 uF (!) on both input and output, even though the part is rated from 50 MHz to 4 GHz. Would use at a specific frequency nudge one to a more optimized value? If so, how would that value be determined?

Can somebody give me an education or direct me to a source that would enlighten me on this point?
73,
David W9HQ

497. Re: [w1ghz-transverter-builders] How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-10 23:57:32 UTC
From: Ace Pilot
Topic: 495 Message: 497
Attachments: 1 described; binary payloads are missing from this source WARC

That's exactly how I do it also...Xc= about 5 Ohms...

On 10/10/2016 11:34 PM, gary rheuark garyk5qnm@...
[w1ghz-transverter-builders] wrote:
>
> Hello David.....I have been to 18 GHZ and back with my designs.....
>
> I do get reasonable power output and receiver sensitivity by using a
> crude rule of thumb: "Make the Xc equal 1/10th of the device input
> and output impedance".....
>
> The devices I work with at 3450 MHZ are 50 Ohms in and
> out.....Therefore, I start with an Xc of 5 Ohms or some 10 PFD.....
>
> They did not teach me this at OSU, this is my rule of thumb, learned
> the hard way.....
>
> I will defer to and learn from the correct "legal" method of
> determining the capacitance value.....
>
> Gary.....K5QNM.....Gainesville, Missouri.....Population 773.....
>
>
> ---
> *From:* "thepalmhq@... [w1ghz-transverter-builders]"
> <w1ghz-transverter-builders@yahoogroups.com>
> *To:* w1ghz-transverter-builders@yahoogroups.com
> *Sent:* Monday, October 10, 2016 5:52 PM
> *Subject:* [w1ghz-transverter-builders] How to select blocking
> capacitor values?
>
> A matter that has puzzled me while learning about these microwave
> circuits is how the values of the capacitors in the RF path are selected?
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> But then other devices have wildly differing values. For example, the
> datasheet for the ADL5602 has recommended values of 0.1 uF (!) on both
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> 73,
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498. Re: [w1ghz-transverter-builders] How to select blocking capacitor values? [1 Attachment]

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-11 02:55:31 UTC
From: Steve Bunch
Topic: 495 Message: 498

A big issue is the self-resonant frequency of the capacitor. No capacitor is all Xc, there's also Xl (and loss that acts like R, which becomes relevant at high power levels). So if you pick a series capacitor that happens to have a resonant frequency (Xc == Xl) anywhere near the frequency of operation, it turns into a parallel tuned circuit. Which as we all recall has high impedance at its resonant frequency, so the X is nowhere near what the labeled C value would suggest. The capacitor manufacturer data sheets are a good place to get recommendations for values and capacitor type (physical construction, model number) to use for a given frequency range and power level.

They didn't teach me that in college either – I read this in one of the ARRL microwave design books, but can't recall which right now or I'd quote the exact reference. The one that was just little articles on random topics... I'll try to find it.

Steve, K9SRB (Orlando, FL, formerly Harvard, IL, formerly Urbana, IL)

P.S.
I did construct the 1296 MHz RSU transverter, and measured power levels close to the expected values after replacing a saturating MAR-6 with something with a higher output level and gain (GALI-something). When I mounted the boards in a smallish aluminum box, the output level dropped by a couple of db. The same ARRL book has an article with a rule of thumb for how far you should put boards from a metal surface like a box as a function of wavelength, and I was at the edge of the recommendation, so I assume that was causing my loss. OTOH, if it wasn't in the box, or in fact if the lid wasn't screwed on, I got distorted RF from output getting back in. The loss wasn't enough to seriously harm performance, so I left it that way. (At about that time I got a TS-790S with 1.2GHz coverage, so the project remains mostly-complete, in storage.)

> On Oct 10, 2016, at 7:57 PM, Ace Pilot acepilot@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:
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> That's exactly how I do it also...Xc= about 5 Ohms...
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>> I will defer to and learn from the correct "legal" method of determining the capacitance value.....
>>
>> Gary.....K5QNM.....Gainesville, Missouri.....Population 773.....
>>
>>
>> From: "thepalmhq@... [w1ghz-transverter-builders]"
<mailto:thepalmhq@...[w1ghz-transverter-builders]>
<w1ghz-transverter-builders@yahoogroups.com>
<mailto:w1ghz-transverter-builders@yahoogroups.com>
>> To: w1ghz-transverter-builders@yahoogroups.com
<mailto:w1ghz-transverter-builders@yahoogroups.com>
>> Sent: Monday, October 10, 2016 5:52 PM
>> Subject: [w1ghz-transverter-builders] How to select blocking capacitor values?
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>> David W9HQ
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499. Re: [w1ghz-transverter-builders] How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-11 04:30:49 UTC
From: Steve Bunch
Topic: 495 Message: 499

On Oct 10, 2016, at 10:55 PM, Steve Bunch steve.bunch@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:
>
> A big issue is the self-resonant frequency of the capacitor. No capacitor is all Xc, there's also Xl (and loss that acts like R, which becomes relevant at high power levels). So if you pick a series capacitor that happens to have a resonant frequency (Xc == Xl) anywhere near the frequency of operation, it turns into a parallel tuned circuit. Which as we all recall has high impedance at its resonant frequency, so the X is nowhere near what the labeled C value would suggest. The capacitor manufacturer data sheets are a good place to get recommendations for values and capacitor type (physical construction, model number) to use for a given frequency range and power level.
>
>

I didn't finish that before I hit send, sorry.

If the capacitor instead is series-resonant near the operating frequency, then you have the optimal situation – the Xc and Xl neutralize each other, and the result is just the pure resistive loss (dielectric loss, fringe E-field losses, whatever). This is the optimal capacitor to choose, and there are some rules of thumb for choosing these optimal capacitors.

I'll find that chapter in the book and scan it or at least quote the relevant parts.

>
> They didn't teach me that in college either – I read this in one of the ARRL microwave design books, but can't recall which right now or I'd quote the exact reference. The one that was just little articles on random topics... I'll try to find it.
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> Steve, K9SRB (Orlando, FL, formerly Harvard, IL, formerly Urbana, IL)
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> P.S.
> I did construct the 1296 MHz RSU transverter, and measured power levels close to the expected values after replacing a saturating MAR-6 with something with a higher output level and gain (GALI-something). When I mounted the boards in a smallish aluminum box, the output level dropped by a couple of db. The same ARRL book has an article with a rule of thumb for how far you should put boards from a metal surface like a box as a function of wavelength, and I was at the edge of the recommendation, so I assume that was causing my loss. OTOH, if it wasn't in the box, or in fact if the lid wasn't screwed on, I got distorted RF from output getting back in. The loss wasn't enough to seriously harm performance, so I left it that way. (At about that time I got a TS-790S with 1.2GHz coverage, so the project remains mostly-complete, in storage.)
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>> That's exactly how I do it also...Xc= about 5 Ohms...
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>> On 10/10/2016 11:34 PM, gary rheuark garyk5qnm@... <mailto:garyk5qnm@...>
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>>> Gary.....K5QNM.....Gainesville, Missouri.....Population 773.....
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>>> From: "thepalmhq@... [w1ghz-transverter-builders]"
<mailto:thepalmhq@...[w1ghz-transverter-builders]>
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>>> To: w1ghz-transverter-builders@yahoogroups.com
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>>> Sent: Monday, October 10, 2016 5:52 PM
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>>> 73,
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>>> David W9HQ
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500. Re: [w1ghz-transverter-builders] How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-12 13:21:03 UTC
From: thepalmhq@...
Topic: 495 Message: 500

Great information from Gary, Scott, and Steve.

Looking out for the specifics of self-resonance makes sense and I'm looking foward to learning more from Steve on that point.

"Make the Xc equal 1/10th of the device input and output impedance" is a nice, easy-to-follow rule of thumb. But the question is why 1/10th of the device impedence particularly good? Is there an objective reason why this is an optimal choice?

73,

David W9HQ

501. Re: [w1ghz-transverter-builders] How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-12 14:01:18 UTC
From: Zack Widup
Topic: 495 Message: 501

For a couple reasons that I can think of. For one, the resonant frequency is likely to be far away from your operating frequency. And it approaches more of a short-circuit at the frequency being used.

The rule-of-thumb I've used (with stripline/microstrip, anyway) is to make the Xc value of bypass and DC blocking capacitors 0.1 X the transmission line impedance.

73, Zack W9SZ

P.S. If any of you are going to Microwave Update this weekend in St. Louis, I'll see you there!

On Wed, Oct 12, 2016 at 8:21 AM, thepalmhq@gmail.com [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> Great information from Gary, Scott, and Steve.
>
> Looking out for the specifics of self-resonance makes sense and I'm
> looking foward to learning more from Steve on that point.
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> nice, easy-to-follow rule of thumb. But the question is why 1/10th of the
> device impedence particularly good? Is there an objective reason why this
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> 73,
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> David W9HQ
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>
>
>

502. Re: [w1ghz-transverter-builders] How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-12 14:33:36 UTC
From: Steve Bunch
Topic: 495 Message: 502

David,

I found one of the two ARRL microwave books I was looking for (long story, but basically, boxes of books unopened in the garage since the last move…). It's "The ARRL UHF/Microwave Experimenter's Manual", subtitled "Antennas Components and Design", my version has a copyright 1990-2000. This is a great source of information. It appears to be unavailable at ARRL, but you can buy it used on Amazon for $4 and up.
https://smile.amazon.com/Arrl-Uhf-Microwave-Experimenters-Manual/dp/0872593126 (the "smile" is how you donate a bit to a cause, I donate to ARRL). There are a couple of other Microwave books at ARRL's store, I suspect they'd have the same information.

A couple of points from that book on capacitor selection:

For bypassing at a given frequency, the optimum is a "j0" capacitor, one that is series-resonant at the frequency being bypassed. "Typically, a .1" ceramic chip capacitor has an approximate inductance of 0.5nH, while that of a .050" chip capacitor is 0.25nH. Therefore the inductive reactance can be estimated at the frequency of interest." They give an example at 2304MHz, Xl = 2 x pi x f x L = 3.6 ohms.
To pick an equal Xc: C = 1/ (2 x pi x f x X = 19.1 pf. So a 20pf standard capacitor would be a nearly ideal value for a bypass at 2304MHz.

For a series C, there are some guidelines: "Because of their internal structure, even chip capacitors have a series-resonant frequency, and above this frequency they display some inductance." They mention taking advantage of the series-resonance for bypassing as noted above, then say: "Otherwise, care should be used to select capacitance values which permit the capacitor to function at frequencies below resonance, where the component appears as a true capacitor." They then point out that companies like ATC provide charts showing resonant frequencies of capacitors of different size, construction, and capacitance.

A search for ATC capacitors datasheet <https://www.google.com/search?client=safari&rls=en&q=ATC+capacitors+datasheet&ie=UTF-8&oe=UTF-8> gave a number of things to look at. I looked at a couple of the pdf datasheets, and they all have a chart of resonant frequency vs. capacitance value. E.g., the ATC 100 B series at 100pf have a series-resonant frequency of around 100MHz (!), the ATC 600S series 100pf resonant frequency is around 1500MHz, and so on. As the capacitance goes down, the series-resonant frequency goes up, so coupling capacitors should be chosen as a compromise between high-enough resonant frequency and low-enough Xc. 100pf appears to be too large for coupling even at 23cm, for even the 600S caps. The 100B series capacitor at 100pf would apparently be an inductor at that frequency. Putting a good microwave capacitor in parallel with it, or maybe just parasitic capacitance, would make a parallel-resonant tank… not good.

Bottom line is that Zack's rule of thumb translates to a capacitor value that's likely well below its series-resonant frequency, and with a "low enough" Xc. And the data sheets say to be careful what kind of capacitor you're using, and keep the values as low as practical.

73,

Steve, K9SRB

> On Oct 12, 2016, at 9:21 AM, thepalmhq@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:
>
> Great information from Gary, Scott, and Steve.
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> Looking out for the specifics of self-resonance makes sense and I'm looking foward to learning more from Steve on that point.
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> 73,
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503. Re: [w1ghz-transverter-builders] How to select blocking capacitor values?

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-12 14:47:18 UTC
From: Steve Bunch
Topic: 495 Message: 503

Oops – I maligned the ATC 100 B chip caps too much! Misread the chart, the 100pf cap is resonant at more like 700MHz, it was the 1000pf that was closer to 100MHz. Whew! I had to go back and check because I have a whole bunch of the 100 B caps in my parts bin and I got worried about using them. Bottom line is stick with small values at high frequencies!

Steve, K9SRB

> On Oct 12, 2016, at 10:33 AM, Steve Bunch <steve.bunch@...> wrote:
>
> David,
>
> I found one of the two ARRL microwave books I was looking for (long story, but basically, boxes of books unopened in the garage since the last move…). It's "The ARRL UHF/Microwave Experimenter's Manual", subtitled "Antennas Components and Design", my version has a copyright 1990-2000. This is a great source of information. It appears to be unavailable at ARRL, but you can buy it used on Amazon for $4 and up.
> https://smile.amazon.com/Arrl-Uhf-Microwave-Experimenters-Manual/dp/0872593126 <https://smile.amazon.com/Arrl-Uhf-Microwave-Experimenters-Manual/dp/0872593126> (the "smile" is how you donate a bit to a cause, I donate to ARRL). There are a couple of other Microwave books at ARRL's store, I suspect they'd have the same information.
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> A couple of points from that book on capacitor selection:
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504. Re: LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-15 09:35:43 UTC
From: adam9a4qv@...
Topic: 482 Message: 504

Hello Zack,

I think you have a problem with the LNA stability. Your 23cm LNA most probably oscillate, this is why you have the S+20dB noise in your receiver. Introducing the attenuators you match the input/output by the double value of your attenuation and you manage to stabilize your receiving chain. This is an old trick, when nothing works try to insert the isolation and match the stages.

You should get much better results if you use the unconditionally stable LNAs where you will not end up with such a problems.

Adam

505. Re: LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-15 09:47:57 UTC
From: adam9a4qv@...
Topic: 482 Message: 505

Hello David,

The PGA103 amps look nice but just on the paper. I really do not know how this guys selling LNAs with PGA103 manage to have no returns or complains around the web. I found the stability problems right at the beginning, when the part was released. Since then, i exchange a descent number emails with the Minicircuits guys as they were interested how to solve that problem.

If you follow the history of the PGA103 datasheets and Application notes you may note that this has been changed several times just because this instability problem. At the beginning the matching network was introduced at the input to bring the k factor up for the frequencies bellow 200MHz. This did help a bit but did not solve the problem. Lately, also the bias coil should be used as per Minicircuits requirements.

Most of this PGA103 LNAs does not follow the proposed modifications and just a few of the guys admit this problem. You can read also the W1GHZ article about the PGA103 amplifier where he recognize the problem but he is not sure why this is happening.

I avoid to use the PGA103, the datasheet state a bit higher IP3 but this is not worth troubles with stability. Anyway, we do not have the IF radio so good to support such a high IP3 figures through the receiving chain.

Adam

506. Re: [w1ghz-transverter-builders] Re: LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-15 11:58:31 UTC
From: Zack Widup
Topic: 482 Message: 506

No, it does not oscillate. I am completely certain of that. It is fairly common from what I have noticed that too much gain in the front end of a receiver will generate way too much noise in the receiver. I had this problem on 3456 with a different preamp lineup once. It also did not oscillate.In that case I was using two preamps in series. I removed one and it brought the noise down to a reasonable level.

73, Zack W9SZ

On Sat, Oct 15, 2016 at 4:35 AM, adam9a4qv@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

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> Hello Zack,
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> I think you have a problem with the LNA stability. Your 23cm LNA most
> probably oscillate, this is why you have the S+20dB noise in your receiver.
> Introducing the attenuators you match the input/output by the double value
> of your attenuation and you manage to stabilize your receiving chain. This
> is an old trick, when nothing works try to insert the isolation and match
> the stages.
>
> You should get much better results if you use the unconditionally stable
> LNAs where you will not end up with such a problems.
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> Adam
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507. Re: [w1ghz-transverter-builders] Re: LNAs for the W1GHZ transverters

Yahoo group: w1ghz-transverter-builders
Date: 2016-10-15 22:18:18 UTC
From: adam9a4qv@...
Topic: 482 Message: 507

Zack, the math is simple. You said that you had the noise on 1296 S9+20 and adding the attenuator you bring it down to S2 to S3. For that, you need the 56 to 62 dB of attenuation.
S9+20dB is the signal of -73dBm so your complete conversion gain should be cca. 70dB in that case.
This is hardly possible.
I still think that your LNA was oscillating.

Adam

508. Source of parts for 1296 RSU

Yahoo group: w1ghz-transverter-builders
Date: 2016-11-30 17:24:26 UTC
From: ve7pke@...
Topic: 508 Message: 508

Just starting on the 1296 RSU and LO.
What has everyone been using for A1 on the RSU 1296? Seems the SGA-3586Z is Obsolete and no stock at Mouser and Digikey.

Looks like I have most of the MMIC's in my parts drawers. I hope MMIC's are like wine, they get better with age. :-) the are NOS.
Thanks

Dave
VE7HR

509. Re: [w1ghz-transverter-builders] Source of parts for 1296 RSU

Yahoo group: w1ghz-transverter-builders
Date: 2016-11-30 18:02:37 UTC
From: Zack Widup
Topic: 508 Message: 509

I believe the original design used an INA-10386. I have a handful of them, so that is what I used. They perform very well. I also use the WD5AGO low-noise preamp before that.
It uses an ATF36077 followed by an MGA61563.

You might have to search eBay for parts.

73, Zack W9SZ

On Wed, Nov 30, 2016 at 11:24 AM, ve7pke@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> Just starting on the 1296 RSU and LO.
> What has everyone been using for A1 on the RSU 1296? Seems the SGA-3586Z
> is Obsolete and no stock at Mouser and Digikey.
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> Looks like I have most of the MMIC's in my parts drawers. I hope MMIC's
> are like wine, they get better with age. :-) the are NOS.
> Thanks
>
> Dave
> VE7HR
>
>
>
>

510. Re: [w1ghz-transverter-builders] Source of parts for 1296 RSU

Yahoo group: w1ghz-transverter-builders
Date: 2016-11-30 20:57:47 UTC
From: Ace Pilot
Topic: 508 Message: 510
Attachments: 1 described; binary payloads are missing from this source WARC

Last time I checked, Dan's Small Parts and Kits had the INA-10386 for
sale. He only sells via the Internet.

http://www.danssmallpartsandkits.net/

On 11/30/2016 6:02 PM, Zack Widup w9sz.zack@...
[w1ghz-transverter-builders] wrote:
> I believe the original design used an INA-10386. I have a handful of
> them, so that is what I used. They perform very well. I also use the
> WD5AGO low-noise preamp before that.
> It uses an ATF36077 followed by an MGA61563.
>
> You might have to search eBay for parts.
>
> 73, Zack W9SZ
>
>
> On Wed, Nov 30, 2016 at 11:24 AM, ve7pke@...
> <mailto:ve7pke@...> [w1ghz-transverter-builders]
> <w1ghz-transverter-builders@yahoogroups.com
> <mailto:w1ghz-transverter-builders@yahoogroups.com>> wrote:
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> MMIC's are like wine, they get better with age. :-) the are NOS.
> Thanks
>
> Dave
> VE7HR
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>

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511. Re: [w1ghz-transverter-builders] Source of parts for 1296 RSU [1 Attachment]

Yahoo group: w1ghz-transverter-builders
Date: 2016-11-30 22:25:50 UTC
From: Ace Pilot
Topic: 508 Message: 511
Attachments: 2 described; binary payloads are missing from this source WARC

Yup. Still has them. $2.85 a pop. Stock up...get 5 or 10 and you'll
be set for a lifetime.

N0EDV

On 11/30/2016 8:57 PM, Ace Pilot acepilot@...
[w1ghz-transverter-builders] wrote:
>
> Last time I checked, Dan's Small Parts and Kits had the INA-10386 for
> sale. He only sells via the Internet.
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> http://www.danssmallpartsandkits.net/
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>> On Wed, Nov 30, 2016 at 11:24 AM, ve7pke@...
>> <mailto:ve7pke@...> [w1ghz-transverter-builders]
>> <w1ghz-transverter-builders@yahoogroups.com
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>> Dave
>> VE7HR

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512. Re: [w1ghz-transverter-builders] Source of parts for 1296 RSU [1 Attachment]

Yahoo group: w1ghz-transverter-builders
Date: 2016-11-30 23:11:25 UTC
From: Dave Miller
Topic: 508 Message: 512

Thanks for the lead.
Went to order and only ships to USA.
Being VE7HR that is a problem. :-(I shall continue search.
Thanks
Dave

Sent from my iPhone

> On Nov 30, 2016, at 2:25 PM, Ace Pilot acepilot@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:
> Yup. Still has them. $2.85 a pop. Stock up...get 5 or 10 and you'll be set for a lifetime.
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>>>> Thanks
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>>>> Dave
>>>> VE7HR
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>>>>
>>>
>>
>> --
>> <mime-attachment.jpg>
>
> --
> <sig.jpg>
>

513. Re: [w1ghz-transverter-builders] Source of parts for 1296 RSU [1 Attachment]

Yahoo group: w1ghz-transverter-builders
Date: 2016-11-30 23:20:58 UTC
From: thepalmhq@...
Topic: 508 Message: 513

Hey Dave,

Another part that has been suggested and that is a bit superior in some ways to the SGA-3586Z is the SGA-4586Z. It so happens that I just bought a fairly large batch of these and would be willing to part with some -- I got a good price, so they would be reasonable. Ping me privately if you'd be interested -- thepalmhq <at> gmail <dot> com.

73,

David W9HQ

---In w1ghz-transverter-builders@yahoogroups.com, <ve7pke@gmail.com> wrote :

Thanks for the lead.
Went to order and only ships to USA.
Being VE7HR that is a problem. :-(I shall continue search.
Thanks
Dave

514. Re: [w1ghz-transverter-builders] Source of parts for 1296 RSU [1 Attachment]

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-02 22:49:39 UTC
From: adam9a4qv@...
Topic: 508 Message: 514

You can try with INA02186. I had good results with that MMIC, the same gain and much lower NF comparing to INA10386.

Adam

515. Re: [w1ghz-transverter-builders] Source of parts for 1296 RSU

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-02 23:10:07 UTC
From: Dave Miller
Topic: 508 Message: 515

Thanks Adam,
Found some on Fleabay. Will give them a go.
Dave
VE7HR

On Fri, Dec 2, 2016 at 2:49 PM, adam9a4qv@...
[w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
wrote:

>
>
> You can try with INA02186. I had good results with that MMIC, the same
> gain and much lower NF comparing to INA10386.
>
> Adam
>
>

516. Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-27 23:04:19 UTC
From: ve7pke@...
Topic: 516 Message: 516

I hope everyone is enjoying a good holiday.
Does anyone have either a source or a suggested replacement for the G6Y-1-DC12 relay on the W1GHZ relay board? Seems its also gone obsolete. I an waiting on a response from 1 vendor who claims to have some stock left.
I see Digikey has some other options but pinout is vastly different.
If I can't find them I will just have to do another PCB
Thanks
Dave
VE7HR

517. Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-27 23:19:00 UTC
From: ve7pke@...
Topic: 516 Message: 517

I guess I might try answering my own question.
It looks like the Panasonic ARE1012 might be a candidate. I think the footprint looks similar.
Its performance at 1.2 should be OK.

Yeahs or Nays are appreciated.

Thanks
Dave
VE7HR

518. Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-28 16:22:40 UTC
From: adam9a4qv@...
Topic: 516 Message: 518

The specs are ok.
Good enough for the rover transverters.

Adam

519. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-28 17:54:39 UTC
From: Dave Miller
Topic: 516 Message: 519

Thanks Adam,
When you say good enough what would you suggest as a better choice?
Thanks
Dave
VE7HR

On Wed, Dec 28, 2016 at 8:22 AM, adam9a4qv@yahoo.com
[w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
wrote:

>
>
> The specs are ok.
> Good enough for the rover transverters.
>
> Adam
>
>

520. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-28 22:58:48 UTC
From: adam9a4qv@...
Topic: 516 Message: 520

I can suggest a better product, better coaxial relay as I am using in my very first one rover transverter W1GHZ rover transverter for 1296 MHz
http://croatia-microwave.blogspot.hr/2010/12/w1ghz-rover-transverter-for-1296-mhz.html

http://croatia-microwave.blogspot.hr/2010/12/w1ghz-rover-transverter-for-1296-mhz.html

W1GHZ rover transverter for 1296 MHz
http://croatia-microwave.blogspot.hr/2010/12/w1ghz-rover-transverter-for-1296-mhz.html
http://www.w1ghz.org/MBT/multiband.htm The idea of building this project was how cheap and simple you can build the 23cm transverter that...

View on croatia-microwave.b...
http://croatia-microwave.blogspot.hr/2010/12/w1ghz-rover-transverter-for-1296-mhz.html
Preview by Yahoo

but this is kind of overkill. Too expensive, for such a project. You will not hear the difference using the relay you proposed and the one I used. At that place your relay is good enough :-) and your relay will draw less curent then mine and sometimes this is important. Lately, I have all my rover transverters (1296, 2320, 3400 MHz) close to the antenna, actually on the mast behind the antenna. I have a DC cable going to the mast. Such a coaxial relay can draw like 200mA easily and the end requirements for the DC cable are bigger. Then if you are in portable on the small battery together with the FT-817 then you will apriciate the lower consumption :-)

Adam

521. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-29 00:00:58 UTC
From: Zack Widup
Topic: 516 Message: 521

My transverters also connect right at the antennas. When I built the 1295 right-side-up transverter, I added a 10 watt amplifier and a now-noise preamp. The transmit and receive lines on the 1296 board simply have SMA edge connectors on them, and SMA cables go from those to the transmit amp and receive preamp with helical filters for 1296 in-between. The preamp and transmit amp go to an SMA relay, which connects to the antenna.

Maybe I was lucky, but I bought 8 SMA relays on eBay a few years ago for $8 apiece.

73, Zack W9SZ

On Wed, Dec 28, 2016 at 4:58 PM, adam9a4qv@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> I can suggest a better product, better coaxial relay as I am using in my
> very first one rover transverter W1GHZ rover transverter for 1296 MHz
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> [image: image]
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> the mast behind the antenna. I have a DC cable going to the mast. Such a
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> DC cable are bigger. Then if you are in portable on the small battery
> together with the FT-817 then you will apriciate the lower consumption :-)
>
> Adam
>

>
>

522. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-29 04:06:32 UTC
From: Dave Miller
Topic: 516 Message: 522

So would a CS-33S10 be an option? 28V is not ideal but can deal with that.
It looks like they are probably rated about 100W at 1300??
I hope to eventually add a PA and a preamp.
Zack which preamp and resonators did you add?
Thanks so much.
So much to learn

On Wed, Dec 28, 2016 at 2:58 PM, adam9a4qv@...
[w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
wrote:

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> I can suggest a better product, better coaxial relay as I am using in my
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> W1GHZ rover transverter for 1296 MHz
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>
> Adam
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523. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-29 06:07:40 UTC
From: Zack Widup
Topic: 516 Message: 523

Hi Dave,

Yes, the CS33S10 should work fine. I think that may be the same relay I'm using. I have a data sheet for that around somewhere. I seem to recall the power level at 1296 is around 120 to 150 watts.

Both my 902 and 1296 transverters use the WD5AGO "Central States 2007" preamp. It uses an ATF36077 followed by an MGA61563. Gain is around 35 to 37 dB and NF is around 0.8 dB. Tommy sells pc boards for this preamp at not much cost - I think $5 or $10 apiece.

My amp on 1296 is a Mitsubishi M67715 module driving an M57762 module. I've had those modules for many years. The newer RA-series (e.g. RA18H1213G) should work fine.

The filters I have are Toko helical filters I got from Down East Microwave many years ago. I believe Temwell makes replacements/substitutes.

I bought a bunch of these DC-DC inverters on eBay:

http://www.ebay.com/itm/201422600692/

At $2 apiece, they are a real deal. They can be adjusted for 28 volts out with 12 volts in. They are buck-boost inverters. I have not had one fail on me yet.

73, Zack W9SZ

On Wed, Dec 28, 2016 at 10:06 PM, Dave Miller ve7pke@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> So would a CS-33S10 be an option? 28V is not ideal but can deal with that.
> It looks like they are probably rated about 100W at 1300??
> I hope to eventually add a PA and a preamp.
> Zack which preamp and resonators did you add?
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> On Wed, Dec 28, 2016 at 2:58 PM, adam9a4qv@...
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>> Adam
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524. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-29 16:42:33 UTC
From: Dave Miller
Topic: 516 Message: 524

Hi Zack,
Thanks for all the good information.
I will continue to track down such things. Must start collecting microwave relays. ;-)
BTW I have a envelope of those up-converters already. Then again I have a bag of lots of parts. :-)

I appreciate the help as I don't have any local people skilled in the art of building such things.

My plan is similar to yours. Build a mast mounted unit with a few watts of output and a some good filtering. Once I get 1296 done will work on 902 and 2.4.

HNY
de Dave
VE7HR

On Wed, Dec 28, 2016 at 10:07 PM, Zack Widup w9sz.zack@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:

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> Hi Dave,
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> Yes, the CS33S10 should work fine. I think that may be the same relay I'm using. I have a data sheet for that around somewhere. I seem to recall the power level at 1296 is around 120 to 150 watts.
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> On Wed, Dec 28, 2016 at 10:06 PM, Dave Miller ve7pke@...
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>>> Adam
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525. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-30 13:23:45 UTC
From: James French
Topic: 516 Message: 525

I think I still have some of those relays left over from the group purchases I did back 6-7 years ago.

If I don't post a reply back in a couple of days, send me a reminder message direct. Got too much on the mind with working 12's and going to school, so I forget a LOT of things lately that I say I will do :(

James W8ISS

On Dec 29, 2016 11:42 AM, "Dave Miller ve7pke@gmail.com [w1ghz-transverter-builders]" <w1ghz-transverter-builders@yahoogroups.com> wrote:

>
>
> Hi Zack,
> Thanks for all the good information.
> I will continue to track down such things. Must start collecting microwave
> relays. ;-)
> BTW I have a envelope of those up-converters already. Then again I have a
> bag of lots of parts. :-)
>
> I appreciate the help as I don't have any local people skilled in the art
> of building such things.
>
> My plan is similar to yours. Build a mast mounted unit with a few watts of
> output and a some good filtering. Once I get 1296 done will work on 902 and
> 2.4.
>
> HNY
> de Dave
> VE7HR
>
>
> On Wed, Dec 28, 2016 at 10:07 PM, Zack Widup w9sz.zack@...
> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
> wrote:
>
>>
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>> Hi Dave,
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>> Yes, the CS33S10 should work fine. I think that may be the same relay I'm
>> using. I have a data sheet for that around somewhere. I seem to recall the
>> power level at 1296 is around 120 to 150 watts.

>>
>> Both my 902 and 1296 transverters use the WD5AGO "Central States 2007"
>> preamp. It uses an ATF36077 followed by an MGA61563. Gain is around 35 to
>> 37 dB and NF is around 0.8 dB. Tommy sells pc boards for this preamp at not
>> much cost - I think $5 or $10 apiece.
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>> My amp on 1296 is a Mitsubishi M67715 module driving an M57762 module.
>> I've had those modules for many years. The newer RA-series (e.g.
>> RA18H1213G) should work fine.
>>
>> The filters I have are Toko helical filters I got from Down East
>> Microwave many years ago. I believe Temwell makes replacements/substitutes.
>>
>> I bought a bunch of these DC-DC inverters on eBay:
>>
>> http://www.ebay.com/itm/201422600692/
>>
>> At $2 apiece, they are a real deal. They can be adjusted for 28 volts out
>> with 12 volts in. They are buck-boost inverters. I have not had one fail on
>> me yet.
>>
>> 73, Zack W9SZ
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>> On Wed, Dec 28, 2016 at 10:06 PM, Dave Miller ve7pke@...
>> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com>
>> wrote:
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>>> So would a CS-33S10 be an option? 28V is not ideal but can deal with
>>> that. It looks like they are probably rated about 100W at 1300??
>>> I hope to eventually add a PA and a preamp.
>>> Zack which preamp and resonators did you add?
>>> Thanks so much.
>>> So much to learn
>>>
>>> On Wed, Dec 28, 2016 at 2:58 PM, adam9a4qv@...
>>> [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com
>>> > wrote:
>>>
>>>>
>>>>
>>>> I can suggest a better product, better coaxial relay as I am using in
>>>> my very first one rover transverter W1GHZ rover transverter for 1296
>>>> MHz
>>>>
<http://croatia-microwave.blogspot.hr/2010/12/w1ghz-rover-transverter-for-1296-mhz.html>
>>>> [image: image]
>>>>

<http://croatia-microwave.blogspot.hr/2010/12/w1ghz-rover-transverter-for-1296-mhz.html>
>>>> W1GHZ rover transverter for 1296 MHz
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>>>> http://www.w1ghz.org/MBT/multiband.htm The idea of building this
>>>> project was how cheap and simple you can build the 23cm transverter that...
>>>> View on croatia-microwave.b...
>>>>
<http://croatia-microwave.blogspot.hr/2010/12/w1ghz-rover-transverter-for-1296-mhz.html>
>>>> Preview by Yahoo
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>>>> but this is kind of overkill. Too expensive, for such a project. You
>>>> will not hear the difference using the relay you proposed and the one I
>>>> used. At that place your relay is good enough :-) and your relay will draw
>>>> less curent then mine and sometimes this is important. Lately, I have all
>>>> my rover transverters (1296, 2320, 3400 MHz) close to the antenna, actually
>>>> on the mast behind the antenna. I have a DC cable going to the mast. Such a
>>>> coaxial relay can draw like 200mA easily and the end requirements for the
>>>> DC cable are bigger. Then if you are in portable on the small battery
>>>> together with the FT-817 then you will apriciate the lower consumption :-)
>>>>
>>>> Adam
>>>>
>>>>
>>>
>>
>
>

526. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2016-12-30 21:13:50 UTC
From: Dave Miller
Topic: 516 Message: 526

James,
Let me know if you find anything.
Thanks
Dave
VE7HR

Sent from my iPhone

> On Dec 30, 2016, at 5:23 AM, James French w8iss1@... [w1ghz-transverter-builders] <w1ghz-transverter-builders@yahoogroups.com> wrote:
>
> I think I still have some of those relays left over from the group purchases I did back 6-7 years ago.
>
> If I don't post a reply back in a couple of days, send me a reminder message direct. Got too much on the mind with working 12's and going to school, so I forget a LOT of things lately that I say I will do :(
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>>>> Zack which preamp and resonators did you add?
>>>> Thanks so much.
>>>> So much to learn
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>>>>> I can suggest a better product, better coaxial relay as I am using in my very first one rover transverter W1GHZ rover transverter for 1296 MHz
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>>>>> http://www.w1ghz.org/MBT/multiband.htm The idea of building this project was how cheap and simple you can build the 23cm transverter that...
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527. Re: [w1ghz-transverter-builders] Re: Looking for source for more hard to get parts.

Yahoo group: w1ghz-transverter-builders
Date: 2017-01-14 18:27:24 UTC
From: James French
Topic: 516 Message: 527

Sorry. I thought this message was sent back a week ago. Just found it in my draft folder :(

I have two that I can part with.

Let me know how you want to get them.

James W8ISS

528. 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-13 19:55:31 UTC
From: Rod Johnson
Topic: 528 Message: 528

Some years ago, I built the W1GHZ 222 transverter kit, then loaned it out to a friend after I switched to a DEM kit and a Radio Shack HTX100 driver.
The friend is now an SK and the 222 transverter was returned to me.
My original CD does not seem to have all the files on it any more, and I would like the hookup/tune-up/interconnecting files information.

Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, along with the transverter. It contains some kind of a filter arrangement, connected to a BNC labelled '12M IF', and a pair of SO-239's labelled 'XCVR' and '6M ANT'.
I am assuming this is some sort of a 'duplexer' which allows a 6M antenna to remain connected, and facilitates quick switching between the 24MHz IF for use of the W1GHZ transverter.
Do I have that correct? Who designed this clever device? I have not found anything written up on the internet.

Rod Johnson
Issaquah, WA
CN97al

529. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-13 20:38:00 UTC
From: Zack Widup
Topic: 528 Message: 529

Is it the Miniverter? Paul has most of his articles on his website. Most of them are here: http://www.w1ghz.org/small_proj/small_proj.htm 73, Zack W9SZ On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: > > > > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it out to a friend after I switched to a DEM kit and a Radio Shack HTX100 driver. > The friend is now an SK and the 222 transverter was returned to me. > My original CD does not seem to have all the files on it any more, and I would like the hookup/tune-up/interconnecting files information. > > Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, along with the transverter. It contains some kind of a filter arrangement, connected to a BNC labelled '12M IF', and a pair of SO-239's labelled 'XCVR' and '6M ANT'. > I am assuming this is some sort of a 'duplexer' which allows a 6M antenna to remain connected, and facilitates quick switching between the 24MHz IF for use of the W1GHZ transverter. > Do I have that correct? Who designed this clever device? I have not found anything written up on the internet. > > Rod Johnson > Issaquah, WA > CN97al >

(https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=icon)

Virus-free. www.avast.com (https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link)

530. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-13 21:14:43 UTC
From: Rod Johnson
Topic: 528 Message: 530

Thanks for the reply. That was my first guess; that it might have been on his site.. I have looked over Paul's excellent site, but this simple item is not there. There is only a three section filter between the 'XCVR" port and the "12M IF" port; and a two section filter between the 'XCVR " port and the "6M Ant" port. It is just the five tiny torroids and the small capacitors, that form the filter networks. Rod Johnson issaquah, WA -----Original Message----- From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] To: w1ghz-transverter-builders Sent: Sat, May 13, 2017 1:38 pm Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) Is it the Miniverter? Paul has most of his articles on his website. Most of them are here: http://www.w1ghz.org/small_proj/small_proj.htm 73, Zack W9SZ On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: > > > > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it out to a friend after I switched to a DEM kit and a Radio Shack HTX100 driver. > The friend is now an SK and the 222 transverter was returned to me. > My original CD does not seem to have all the files on it any more, and I would like the hookup/tune-up/interconnecting files information. > > Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, along with the transverter. It contains some kind of a filter arrangement, connected to a BNC labelled '12M IF', and a pair of SO-239's labelled 'XCVR' and '6M ANT'. > I am assuming this is some sort of a 'duplexer' which allows a 6M antenna to remain connected, and facilitates quick switching between the 24MHz IF for use of the W1GHZ transverter. > Do I have that correct? Who designed this clever device? I have not found anything written up on the internet. > > Rod Johnson > Issaquah, WA > CN97al >

(https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=icon)

Virus-free. www.avast.com (https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link);

531. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-13 22:59:12 UTC
From: Zack Widup
Topic: 528 Message: 531

Hi Rod, I will have to look through old files to see if I have that design. But I am confused - why would a 222 MHz transverter use a 6m antenna? 73, Zack W9SZ On Sat, May 13, 2017 at 4:14 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: > > > Thanks for the reply. > That was my first guess; that it might have been on his site.. > I have looked over Paul's excellent site, but this simple item is not > there. > There is only a three section filter between the 'XCVR" port and the "12M > IF" port; and a two section filter between the 'XCVR " port and the "6M > Ant" port. > > It is just the five tiny torroids and the small capacitors, that form the > filter networks. > > Rod Johnson > issaquah, WA > > > -----Original Message----- > From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] < > w1ghz-transverter-builders@yahoogroups.com> > To: w1ghz-transverter-builders > > Sent: Sat, May 13, 2017 1:38 pm > Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) > > > Is it the Miniverter? Paul has most of his articles on his website. > Most of them are here: > > http://www.w1ghz.org/small_proj/small_proj.htm > > 73, Zack W9SZ > > On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... > [w1ghz-transverter-builders] > wrote: > > > > > > > > > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it > out to a friend after I switched to a DEM kit and a Radio Shack HTX100 > driver. > > The friend is now an SK and the 222 transverter was returned to me. > > My original CD does not seem to have all the files on it any more, and I > would like the hookup/tune-up/interconnecting files information. > > > > Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, > along with the transverter. It contains some kind of a filter arrangement, > connected to a BNC labelled '12M IF', and a pair of SO-239's labelled > 'XCVR' and '6M ANT'. > > I am assuming this is some sort of a 'duplexer' which allows a 6M > antenna to remain connected, and facilitates quick switching between the > 24MHz IF for use of the W1GHZ transverter. > > Do I have that correct? Who designed this clever device? I have not > found anything written up on the internet. > > > > Rod Johnson > > Issaquah, WA > > CN97al > > >

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href="https://www.avast.com/sig-email?utm_medium=email& >
utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=icon" >
src="https://ipmcdn.avast.com/images/icons/icon-envelope- >
tick-round-orange-animated-no-repeat-v1.gif" > width="46" height="29" style="width: 46px; height: 29px;" />
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Virus-free. href="https://www.avast.com/sig-email?utm_medium=email& >
utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link" > style="color: #4453ea;">www.avast.com; >
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height="1">
> > > Virus-free. www.avast.com <#DAB4FAD8-2DD7-40BB-A1B8-4E2AA1F9FDF2>

532. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-13 23:13:48 UTC
From: Rod Johnson
Topic: 528 Message: 532

The W1Ghz transverter was designed to be used with the Yaesu Ft-817 . And this device looks like it would allow the use of a 6M antenna while using having the 222 antenna hooked to the transverter. The W1GHZ 222 transverter unit uses the 12m IF. Rod J Sent from AOL Mobile Mail On Saturday, May 13, 2017 Zack Widup w9sz.zack wrote: Hi Rod, I will have to look through old files to see if I have that design. But I am confused - why would a 222 MHz transverter use a 6m antenna? 73, Zack W9SZ On Sat, May 13, 2017 at 4:14 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: Thanks for the reply. That was my first guess; that it might have been on his site.. I have looked over Paul's excellent site, but this simple item is not there. There is only a three section filter between the 'XCVR" port and the "12M IF" port; and a two section filter between the 'XCVR " port and the "6M Ant" port. It is just the five tiny torroids and the small capacitors, that form the filter networks. Rod Johnson issaquah, WA -----Original Message----- From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] To: w1ghz-transverter-builders Sent: Sat, May 13, 2017 1:38 pm Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) Is it the Miniverter? Paul has most of his articles on his website. Most of them are here: http://www.w1ghz.org/small_proj/small_proj.htm 73, Zack W9SZ On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: > > > > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it out to a friend after I switched to a DEM kit and a Radio Shack HTX100 driver. > The friend is now an SK and the 222 transverter was returned to me. > My original CD does not seem to have all the files on it any more, and I would like the hookup/tune-up/interconnecting files information. > > Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, along with the transverter. It contains some kind of a filter arrangement, connected to a BNC labelled '12M IF', and a pair of SO-239's labelled 'XCVR' and '6M ANT'. > I am assuming this is some sort of a 'duplexer' which allows a 6M antenna to remain connected, and facilitates quick switching between the 24MHz IF for use of the W1GHZ transverter. > Do I have that correct? Who designed this clever device? I have not found anything written up on the internet. > > Rod Johnson > Issaquah, WA > CN97al >

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Virus-free. www.avast.com (https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link);

Virus-free. www.avast.com #ygrp-mkp { border: 1px solid #d8d8d8; font-family: Arial; margin: 10px 0; padding: 0 10px;}#ygrp-mkp hr { border: 1px solid #d8d8d8;}#ygrp-mkp #hd { color: #628c2a; font-size: 85%; font-weight: 700; line-height: 122%; margin: 10px 0;}#ygrp-mkp #ads { margin-bottom: 10px;}#ygrp-mkp .ad { padding: 0 0;}#ygrp-mkp .ad p { margin: 0;}#ygrp-mkp .ad a { color: #0000ff; text-decoration: none;} #ygrp-sponsor #ygrp-lc { font-family: Arial;}#ygrp-sponsor #ygrp-lc #hd { margin: 10px 0px; font-weight: 700; font-size: 78%; line-height: 122%;}#ygrp-sponsor #ygrp-lc .ad { margin-bottom: 10px; padding: 0 0;} #actions { font-family: Verdana; font-size: 11px; padding: 10px 0; } #activity { background-color: #e0ecee; float: left; font-family: Verdana; font-size: 10px; padding: 10px; } #activity span { font-weight: 700; } #activity span:first-child { text-transform: uppercase; } #activity span a { color: #5085b6; text-decoration: none; } #activity span span { color: #ff7900; } #activity span .underline { text-decoration: underline; } .attach { clear: both; display: table; font-family: Arial; font-size: 12px; padding: 10px 0;

width: 400px; } .attach div a { text-decoration: none; } .attach img { border: none; padding-right: 5px; } .attach label { display: block; margin-bottom: 5px; } .attach label a { text-decoration: none; } blockquote { margin: 0 0 0 4px; } .bold { font-family: Arial; font-size: 13px; font-weight: 700; } .bold a { text-decoration: none; } dd.last p a { font-family: Verdana; font-weight: 700; } dd.last p span { margin-right: 10px; font-family: Verdana; font-weight: 700; } dd.last p span.yshortcuts { margin-right: 0; } div.attach-table div div a { text-decoration: none; } div.attach-table { width: 400px; } div.file-title a, div.file-title a:active, div.file-title a:hover, div.file-title a:visited { text-decoration: none; } div.photo-title a, div.photo-title a:active, div.photo-title a:hover, div.photo-title a:visited { text-decoration: none; } div#ygrp-mlmsg #ygrp-msg p a span.yshortcuts { font-family: Verdana; font-size: 10px; font-weight: normal; } .green { color: #628c2a; } .MsoNormal { margin: 0 0 0 0; } o { font-size: 0; } #photos div { float: left; width: 72px; } #photos div div { border: 1px solid #666666; height: 62px; overflow: hidden; width: 62px; } #photos div label { color: #666666; font-size: 10px; overflow: hidden; text-align: center; white-space: nowrap; width: 64px; } #reco-category { font-size: 77%; } #reco-desc { font-size: 77%; } .replbq { margin: 4px; } #ygrp-actbar div a:first-child { margin-right: 2px; padding-right: 5px; } #ygrp-mlmsg { font-size: 13px; font-family: Arial, helvetica,clean, sans-serif; *font-size: small; *font: x-small; } #ygrp-mlmsg table { font-size: inherit; font: 100%; } #ygrp-mlmsg select, input, textarea { font: 99% Arial, Helvetica, clean, sans-serif; } #ygrp-mlmsg pre, code { font:115% monospace; *font-size:100%; } #ygrp-mlmsg * { line-height: 1.22em; } #ygrp-mlmsg #logo { padding-bottom: 10px; } #ygrp-msg p a { font-family: Verdana; } #ygrp-msg p#attach-count span { color: #1E66AE; font-weight: 700; } #ygrp-reco #reco-head { color: #ff7900; font-weight: 700; } #ygrp-reco { margin-bottom: 20px; padding: 0px; } #ygrp-sponsor #ov li a { font-size: 130%; text-decoration: none; } #ygrp-sponsor #ov li { font-size: 77%; list-style-type: square; padding: 6px 0; } #ygrp-sponsor #ov ul { margin: 0; padding: 0 0 0 8px; } #ygrp-text { font-family: Georgia; } #ygrp-text p { margin: 0 0 1em 0; } #ygrp-text tt { font-size: 120%; } #ygrp-vital ul li:last-child { border-right: none !important; }

533. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 12:59:51 UTC
From: James Duffey
Topic: 528 Message: 533

Zack - I suspect that it is a du(i)plexer. One has both 28MHz and 50MHz on the same output of an 817. It gets fed into the box and the HF output of the duplexer goes to the transverter, the 6meter output of the duplexer goes to the 6M antenna. So one can switch between 6M and 222MHz just by toggling between 50MHz and 28MHz on the 817. - DUffey KK6MC On May 13, 2017, at 6:59 PM, Zack Widup w9sz.zack@... [w1ghz-transverter-builders] wrote: > > Hi Rod, > > I will have to look through old files to see if I have that design. But I am confused - why would a 222 MHz transverter use a 6m antenna? > > 73, Zack W9SZ > > > On Sat, May 13, 2017 at 4:14 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: > > Thanks for the reply. > That was my first guess; that it might have been on his site.. > I have looked over Paul's excellent site, but this simple item is not there. > There is only a three section filter between the 'XCVR" port and the "12M IF" port; and a two section filter between the 'XCVR " port and the "6M Ant" port. > > It is just the five tiny torroids and the small capacitors, that form the filter networks. > > Rod Johnson > issaquah, WA > > > > -----Original Message----- > From: Zack Widup w9sz.zack@gmail.com [w1ghz-transverter-builders] > To: w1ghz-transverter-builders > Sent: Sat, May 13, 2017 1:38 pm > Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) > > > Is it the Miniverter? Paul has most of his articles on his website. > Most of them are here: > > http://www.w1ghz.org/small_proj/small_proj.htm > > 73, Zack W9SZ > > On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... > [w1ghz-transverter-builders] > wrote: > > > > > > > > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it out to a friend after I switched to a DEM kit and a Radio Shack HTX100 driver. > > The friend is now an SK and the 222 transverter was returned to me. > > My original CD does not seem to have all the files on it any more, and I would like the hookup/tune-up/interconnecting files information. > > > > Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, along with the transverter. It contains some kind of a filter arrangement, connected to a BNC labelled '12M IF', and a pair of SO-239's labelled 'XCVR' and '6M ANT'. > > I am assuming this is some sort of a 'duplexer' which allows a 6M antenna to remain connected, and facilitates quick switching between the 24MHz IF for use of the W1GHZ transverter. > > Do I have that correct? Who designed this clever device? I have not found anything written up on the internet. > > > > Rod Johnson > > Issaquah, WA > > CN97al > > >

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href="https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=icon" > src="https://ipmcdn.avast.com/images/icons/icon-envelope-tick-round-orange-animated-no-repeat-v1.gif" > width="46" height="29" style="width: 46px; height: 29px;" />
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Virus-free. href="https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link" > style="color: #4453ea;">www.avast.com; >
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534. New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 14:03:29 UTC
From: w1ghz-transverter-builders@yahoogroups.com
Topic: 30 Message: 534

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the w1ghz-transverter-builders
group.

File : /222 MHz For The FT817/222.zip
Uploaded by : w9sz <w9sz.zack@...>
Description : 222 MHz For The FT817

You can access this file at the URL:
https://groups.yahoo.com/neo/groups/w1ghz-transverter-builders/files/222%20MHz%20For%20The%20FT817/222.zip

To learn more about file sharing for your group, please visit:
https://help.yahoo.com/kb/index?page=content&y=PROD_GRPS&locale=en_US&id=SLN15398

Regards,

w9sz <w9sz.zack@...>

535. New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 14:05:00 UTC
From: w1ghz-transverter-builders@yahoogroups.com
Topic: 30 Message: 535

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the w1ghz-transverter-builders
group.

File : /222 MHz For The FT817/222_corrected.zip
Uploaded by : w9sz <w9sz.zack@...>
Description : 222 For The 817 with corrections

You can access this file at the URL:
https://groups.yahoo.com/neo/groups/w1ghz-transverter-builders/files/222%20MHz%20For%20The%20FT817/222_corrected.zip

To learn more about file sharing for your group, please visit:
https://help.yahoo.com/kb/index?page=content&y=PROD_GRPS&locale=en_US&id=SLN15398

Regards,

w9sz <w9sz.zack@...>

536. New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 14:05:26 UTC
From: w1ghz-transverter-builders@yahoogroups.com
Topic: 30 Message: 536

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the w1ghz-transverter-builders
group.

File : /222 MHz For The FT817/222_update.zip
Uploaded by : w9sz <w9sz.zack@...>
Description : Updated article

You can access this file at the URL:
https://groups.yahoo.com/neo/groups/w1ghz-transverter-builders/files/222%20MHz%20For%20The%20FT817/222_update.zip

To learn more about file sharing for your group, please visit:
https://help.yahoo.com/kb/index?page=content&y=PROD_GRPS&locale=en_US&id=SLN15398

Regards,

w9sz <w9sz.zack@...>

537. New file uploaded to w1ghz-transverter-builders

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 14:07:40 UTC
From: w1ghz-transverter-builders@yahoogroups.com
Topic: 30 Message: 537

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the w1ghz-transverter-builders
group.

File : /222 MHz For The FT817/222short.zip
Uploaded by : w9sz <w9sz.zack@...>
Description : Only key figures are included.

You can access this file at the URL:
https://groups.yahoo.com/neo/groups/w1ghz-transverter-builders/files/222%20MHz%20For%20The%20FT817/222short.zip

To learn more about file sharing for your group, please visit:
https://help.yahoo.com/kb/index?page=content&y=PROD_GRPS&locale=en_US&id=SLN15398

Regards,

w9sz <w9sz.zack@...>

538. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 14:11:13 UTC
From: Zack Widup
Topic: 528 Message: 538

I had pretty much completely forgotten about this article. I found the files I had saved. I made a new folder in the group's Files section called "222 MHz For The FT-817" and uploaded the files there. Everything you need to know is in these files. I recently bought an FT817 and now I want to build this! 73, Zack W9SZ On Sun, May 14, 2017 at 7:59 AM, James Duffey JamesDuffey@... [w1ghz-transverter-builders] wrote: > > > Zack - I suspect that it is a du(i)plexer. One has both 28MHz and 50MHz on > the same output of an 817. It gets fed into the box and the HF output of > the duplexer goes to the transverter, the 6meter output of the duplexer > goes to the 6M antenna. So one can switch between 6M and 222MHz just by > toggling between 50MHz and 28MHz on the 817. - DUffey KK6MC > On May 13, 2017, at 6:59 PM, Zack Widup w9sz.zack@gmail.com > [w1ghz-transverter-builders] > wrote: > > > Hi Rod, > > I will have to look through old files to see if I have that design. But I > am confused - why would a 222 MHz transverter use a 6m antenna? > > 73, Zack W9SZ > > > On Sat, May 13, 2017 at 4:14 PM, Rod Johnson WE7X@... [w1ghz- > transverter-builders] wrote: > >> >> >> Thanks for the reply. >> That was my first guess; that it might have been on his site.. >> I have looked over Paul's excellent site, but this simple item is not >> there. >> There is only a three section filter between the 'XCVR" port and the "12M >> IF" port; and a two section filter between the 'XCVR " port and the "6M >> Ant" port. >> >> It is just the five tiny torroids and the small capacitors, that form the >> filter networks. >> >> Rod Johnson >> issaquah, WA >> >> >> -----Original Message----- >> From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] < >> w1ghz-transverter-builders@yahoogroups.com> >> To: w1ghz-transverter-builders > hoogroups.com> >> Sent: Sat, May 13, 2017 1:38 pm >> Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) >> >> >> Is it the Miniverter? Paul has most of his articles on his website. >> Most of them are here: >> >> http://www.w1ghz.org/small_proj/small_proj.htm >> >> 73, Zack W9SZ >> >> On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... >> [w1ghz-transverter-builders] >> wrote: >> > >> > >> > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it >> out to a friend after I switched to a DEM kit and a Radio Shack HTX100 >> driver. >> > The friend is now an SK and the 222 transverter was returned to me. >> > My original CD does not seem to have all the files on it any more, and >> I would like the hookup/tune-up/interconnecting files information. >> > >> > Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, >> along with the transverter. It contains some kind of a filter arrangement, >> connected to a BNC labelled '12M IF', and a pair of SO-239's labelled >> 'XCVR' and '6M ANT'. >> > I am assuming this is some sort of a 'duplexer' which allows a 6M >> antenna to remain connected, and facilitates quick switching between the >> 24MHz IF for use of the W1GHZ transverter. >> > Do I have that correct? Who designed this clever device? I have not >> found anything written up on the internet. >> > >> > Rod Johnson >> > Issaquah, WA >> > CN97al >> > >>

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539. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 15:40:01 UTC
From: Rod Johnson
Topic: 528 Message: 539

Zack, So, it looks like James is referring to the same accessory. He mentions the 28MHz output along with the 50MHz one, being on the same RF output connector (Everything 6M and below comes out there). That is correct, but I think he meant the 24MHz (the 12M IF) and the 50MHz, in reference to this little diplexer device. I have no idea who designed or built this item, nor where my deceased friend purchased it. I know my friend did not build it, even if it came as a kit of parts. It was apparently found in a bag of stuff along with some other FT-817 related items, so when my W1GHZ 222 transverter was returned, it came to me along with it. I will put it on my spectrum analyzer, just for grins. I also have a low power beacon on 222.050 MHz., but it only runs occasionally, or by request. Rod Johnson Issaquah, WA CN97al -----Original Message----- From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] To: w1ghz-transverter-builders Sent: Sun, May 14, 2017 7:11 am Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) I had pretty much completely forgotten about this article. I found the files I had saved. I made a new folder in the group's Files section called "222 MHz For The FT-817" and uploaded the files there. Everything you need to know is in these files. I recently bought an FT817 and now I want to build this! 73, Zack W9SZ On Sun, May 14, 2017 at 7:59 AM, James Duffey JamesDuffey@... [w1ghz-transverter-builders] wrote: Zack - I suspect that it is a du(i)plexer. One has both 28MHz and 50MHz on the same output of an 817. It gets fed into the box and the HF output of the duplexer goes to the transverter, the 6meter output of the duplexer goes to the 6M antenna. So one can switch between 6M and 222MHz just by toggling between 50MHz and 28MHz on the 817. - DUffey KK6MC On May 13, 2017, at 6:59 PM, Zack Widup w9sz.zack@... [w1ghz-transverter-builders] wrote: Hi Rod, I will have to look through old files to see if I have that design. But I am confused - why would a 222 MHz transverter use a 6m antenna? 73, Zack W9SZ On Sat, May 13, 2017 at 4:14 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: Thanks for the reply. That was my first guess; that it might have been on his site.. I have looked over Paul's excellent site, but this simple item is not there. There is only a three section filter between the 'XCVR" port and the "12M IF" port; and a two section filter between the 'XCVR " port and the "6M Ant" port. It is just the five tiny torroids and the small capacitors, that form the filter networks. Rod Johnson issaquah, WA -----Original Message----- From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] To: w1ghz-transverter-builders Sent: Sat, May 13, 2017 1:38 pm Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) Is it the Miniverter? Paul has most of his articles on his website. Most of them are here: http://www.w1ghz.org/small_proj/small_proj.htm 73, Zack W9SZ On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: > > > > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it out to a friend after I switched to a DEM kit and a Radio Shack HTX100 driver. > The friend is now an SK and the 222 transverter was returned to me. > My original CD does not seem to have all the files on it any more, and I would like the hookup/tune-up/interconnecting files information. > > Also, a small Hammond die-cast box, about 1" x 1" x 3" was given to me, along with the transverter. It contains some kind of a filter arrangement, connected to a BNC labelled '12M IF', and a pair of SO-239's labelled 'XCVR' and '6M ANT'. > I am assuming this is some sort of a 'duplexer' which allows a 6M antenna to remain connected, and facilitates quick switching between the 24MHz IF for use of the W1GHZ transverter. > Do I have that correct? Who designed this clever device? I have not found anything written up on the internet. > > Rod

Johnson > Issaquah, WA > CN97al >

(https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=icon)

Virus-free. www.avast.com (https://www.avast.com/sig-email?utm_medium=email&utm_source=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link);

Virus-free. www.avast.com

540. Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s)

Yahoo group: w1ghz-transverter-builders
Date: 2017-05-14 16:59:43 UTC
From: Zack Widup
Topic: 528 Message: 540

Hmm ... this item is not the same as the W1GHZ 222 MHz for the FT-817 design? Do you have a photo? 73, Zack W9SZ On Sun, May 14, 2017 at 10:40 AM, Rod Johnson WE7X@... [w1ghz-transverter-builders] wrote: > > > Zack, > So, it looks like James is referring to the same accessory. He > mentions the 28MHz output along with the 50MHz one, being on the same RF > output connector (Everything 6M and below comes out there). That is > correct, but I think he meant the 24MHz (the 12M IF) and the 50MHz, in > reference to this little diplexer device. > I have no idea who designed or built this item, nor where my deceased > friend purchased it. I know my friend did not build it, even if it came as > a kit of parts. It was apparently found in a bag of stuff along with some > other FT-817 related items, so when my W1GHZ 222 transverter was returned, > it came to me along with it. > I will put it on my spectrum analyzer, just for grins. > > I also have a low power beacon on 222.050 MHz., but it only runs > occasionally, or by request. > > Rod Johnson > Issaquah, WA > CN97al > > > > > -----Original Message----- > From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] < > w1ghz-transverter-builders@yahoogroups.com> > To: w1ghz-transverter-builders > > Sent: Sun, May 14, 2017 7:11 am > Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) > > > I had pretty much completely forgotten about this article. I found the > files I had saved. I made a new folder in the group's Files section called > "222 MHz For The FT-817" and uploaded the files there. Everything you need > to know is in these files. > > I recently bought an FT817 and now I want to build this! > > 73, Zack W9SZ > > > On Sun, May 14, 2017 at 7:59 AM, James Duffey JamesDuffey@... > [w1ghz-transverter-builders] > wrote: > > > Zack - I suspect that it is a du(i)plexer. One has both 28MHz and 50MHz on > the same output of an 817. It gets fed into the box and the HF output of > the duplexer goes to the transverter, the 6meter output of the duplexer > goes to the 6M antenna. So one can switch between 6M and 222MHz just by > toggling between 50MHz and 28MHz on the 817. - DUffey KK6MC > On May 13, 2017, at 6:59 PM, Zack Widup w9sz.zack@gmail.com > [w1ghz-transverter-builders] > wrote: > > > Hi Rod, > > I will have to look through old files to see if I have that design. But I > am confused - why would a 222 MHz transverter use a 6m antenna? > > 73, Zack W9SZ > > > On Sat, May 13, 2017 at 4:14 PM, Rod Johnson WE7X@... [w1ghz-tr > ansverter-builders] wrote: > > > Thanks for the reply. > That was my first guess; that it might have been on his site.. > I have looked over Paul's excellent site, but this simple item is not > there. > There is only a three section filter between the 'XCVR" port and the "12M > IF" port; and a two section filter between the 'XCVR " port and the "6M > Ant" port. > > It is just the five tiny torroids and the small capacitors, that form the > filter networks. > > Rod Johnson > issaquah, WA > > > > -----Original Message----- > From: Zack Widup w9sz.zack@... [w1ghz-transverter-builders] < > w1ghz-transverter-builders@yahoogroups.com> > To: w1ghz-transverter-builders > > Sent: Sat, May 13, 2017 1:38 pm > Subject: Re: [w1ghz-transverter-builders] 222 - W1GHZ kit question(s) > > > Is it the Miniverter? Paul has most of his articles on his website. > Most of them are here: > > http://www.w1ghz.org/small_proj/small_proj.htm > > 73, Zack W9SZ > > On Sat, May 13, 2017 at 2:55 PM, Rod Johnson WE7X@... > [w1ghz-transverter-builders] > wrote: > > > > > > > > Some years ago, I built the W1GHZ 222 transverter kit, then loaned it > out to a friend after I switched to a DEM kit and a Radio Shack HTX100 > driver. > > The friend is now an SK and the 222 transverter was returned to me. > > My original CD does not seem to have all the files on it any more, and I > would like the hookup/tune-up/interconnecting files information. > > > > Also, a small Hammond die-cast

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href="https://www.avast.com/sig-email?utm_medium=email&utm_s >
ource=link&utm_campaign=sig-email&utm_content=webmail&utm_term=icon" >
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k-round-orange-animated-no-repeat-v1.gif" > width="46" height="29" style="width: 46px; height: 29px;" />
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ource=link&utm_campaign=sig-email&utm_content=webmail&utm_term=link" > style="color: #4453ea;">www.avast.com; >
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